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# BUTTERFLY COUNTS

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## XERCES SOCIETY

Edited by

Paul A. Opler and Jerry A. Powell

Supplement to Atala, Volume 14 (1986)



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FOURTH OF JULY BUTTERFLY COUNTS

- 1985 REPORT -

Sponsored by the Xerces Society,  
an international insect conservation organization

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## 1985 Xerces Society Butterfly Count

The eleventh annual Fourth of July Butterfly Count was centered around June and July, but the two Arizona counts were held in August. There were 39 counts -- a decrease of 9 from 1984. Seventeen states and 2 Canadian provinces were represented; there was a count in Montana for the first time. California had the largest number, 7 counts, while Colorado and New York each had 5. Two counts (Berkeley, CA, and Gilpin, CO) have been held each of the 11 years, while others have been held for 9 or 10 years.

The instructions and report forms for the 1985 count, together with the 1984 count results, were printed and ready for mailing by May 1, 1985. Unfortunately, however, during a reorganization of the Xerces Society offices the mailing was delayed until long after the count season ended. Presumably this was in part the reason for a decline in participation. We hope that kind of lapse will not be repeated.

In 1985, there were 281 participants, ranging from 1 (on 9 counts) to 43 (Palos Verdes, CA), and averaging 7.2 per count. The number of species ranged from 5 (UCLA, CA) to 88 (Gilpin Co., CO - lower circle), and averaged 31.5 species per count. The number of individual butterflies -- strongly a function of effort expended (party hours), ranged from 20 (UCLA) to 3205 (Atascosa Highlands, AZ). Abundance (individuals per party hour) ranged from 6.7 (UCLA) to an amazing 350 (Muskegon, MI), or nearly 6 butterflies per minute!

Only 255 species were observed, a decline of 26 species from 1984. The biggest void was the absence of counts from the Alpine Life Zone in the Rocky Mountains and from the high Sierra Nevada of California. The Rocky Mountain National Park count was scheduled but canceled due to inclement weather on the selected count day. Only one species, Erynnis lucilius, had not been found in previous count years -- bringing the cumulative butterfly species found on all Xerces Counts to date to 407 species.

A summary of data for all 1985 counts is shown on Table 1. The highest 5 counts in each category are indicated by the appropriate place numbers in parentheses. These are shown for comparative purposes and are not meant to imply any sort of competition between counts. The greatest satisfaction comes from most efficiently covering a circle on count day and comparing year-to-year individual counts representative of the species present.

New all-time national highs are indicated by showing the previous high count in parentheses. In 1985, there were 38 new all-time highs. Atascosa Highlands, AZ, had 8 of these and Fort Collins, CO, had 5.

Most 1985 counts held in circles surveyed previously had greatly reduced numbers of butterflies compared to 1984. Most were more than 50% lower. One count (Berkeley) had low numbers due to persistent fog on count day, and Fort Collins, CO, was unusual in having higher numbers, but most were reduced, apparently because of drought or an advanced dry season. In contrast two compilers (Pearl River, LA, Wahkiakum, WA)

believed higher numbers of butterflies were due to warmer, drier conditions.

All of the butterflies found on the 1985 counts are listed as an appendix together with the number of counts on which each was found and the highest number of individuals counted (national high) and the count responsible. The number of species with national highs on each count is shown in Table 1.

No butterfly was found on every count, but the Alfalfa Butterfly (Colias eurytheme) was found on most - 34 (87%). Other butterflies reported on the majority of 1985 counts were the European Cabbage Butterfly (Pieris rapae) - 32 (82%), Red Admiral (Vanessa atalanta) - 30 (77%), Clouded Sulphur (Colias philodice) - 23 (59%), Monarch (Danaus plexippus) - 21 (54%), and Mourning Cloak (Nymphalis antiopa) - 20 (52%).

No major migrations were noted, but there was a strong influx of Red Admirals in the spring, and as a result they were reported on 77% of the counts -- compared to 57% in 1984. Again Painted Ladies (Vanessa cardui) were reduced in numbers, being found on only 12 counts (31%) with a national high of only 25.

Conservation highlights were the rediscovery of the Smoky Eyed Brown (Satyrodes eurydice fumosa) in Colorado by Scott Ellis on the Fort Collins count and new all-time national highs for the Ottoe Skipper (Hesperia ottoe) - Gilpin County, Regal Fritillary (Speyeria idalia) - Rowe Sanctuary, and the Monarch - Kanata.

A significant addition to the count effort was the addition of Regional Editors for the Northeast (Dr. L. F. Gall) and the Southeast (Dr. T. W. Turner). Regional editors are sought for other regions for the 1986 count year. Editors are expected to encourage counts in their regions and to edit and prepare typewritten copy for all their regional counts.

Table 1. Summary of 1985 Butterfly Counts

<u>Count</u>	<u>Species</u>	<u>Individ's</u>	<u>Party Hours</u>	<u>Obser's</u>	<u>Natl. Highs</u>	<u>Indiv./ hour</u>
<b>SOUTHWEST</b>						
Atascosa, AZ	69(4)	3205(1)	22	7	40(1)	145.7(5)
Ramsey, AZ	80(2)	1960	52(1)	24(2)	26(3)	37.7
Berkeley, CA	41	547	18	9	2	30.4
Kern, CA	43	887	21	18(3)	9	42.2
Mt. Diablo, CA	49(5)	1947(4)	20.5(3)	7	23(4)	95.0
Palos Verdes, CA	26	1465	25(4)	43(1)	12	58.6
San Francisco, CA	12	120	9	17(4)	2	13.3
UCLA, CA	5	20	3	1	0	6.7
Willow Slough, CA	24	701	4.5	1	5	155.8(4)
<b>NORTHWEST</b>						
Chumstick, WA	38	1239	12	11	14	103.2
Wahkiakum, WA	9	58	6	4	1	9.7
<b>ROCKY MOUNTAINS</b>						
Elrod, MT	39	465	6	4	6	77.5
Cheyenne, WY	34	354	7.5	1	6	47.2
Calwood, CO	23	143	3.5	8	0	40.8
Ft. Collins, CO	70(3)	2580(2)	20.5	6	16	125.8
Gilpin lower, CO	88(1)	2159(3)	36(2)	11	33(2)	60.0
Gilpin upper, CO	47	711	8	7	13	88.9
Highline, CO	35	977	6	5	3	162.8(3)
<b>GREAT PLAINS</b>						
Fontenelle, NE	23	210	7.5	10	5	28.0
Rowe, NE	15	278	3	5	1	92.7
Sioux Canyons, NE	28	651	11	2	3	59.2
<b>MIDWEST</b>						
McGraw, IL	29	576	9	6	3	64.0(1)
Muskegon, MI	28	1398	4	10	3	349.5(1)
Cleveland Hts., OH	17	258	4.5	1	1	57.3
<b>SOUTHEAST</b>						
Pearl River, LA-MS	20	134	7.15	3	2	18.7
Washington Co., AR	34	188	4	1	0	47.0
Calvert Co., MD	27	262	8	2	4	32.7

Table 1 (continued)

<u>Count</u>	<u>Species</u>	<u>Individ's</u>	<u>Party Hours</u>	<u>Obser's</u>	<u>Nat1. Highs</u>	<u>Indiv./ hour</u>
<b>NORTHEAST</b>						
Kanata, ONT	21	493	5.5	1	2	89.6
Val-Des-Monts, QUE	14	913	5	1	3	182.6(2)
Delaware, PA	19	124	6	5	0	20.7
Bucks, PA	17	130	5	5	1	26.0
Queens, NY	22	200	8	1	1	25.0
Chattaqua, NY	18	518	6	2	0	86.3
Inwood Hill, NY	32	629	9	13(5)	3	69.9
Jamaica Bay, NY	22	758	8	10	1	94.7
Westchester, NY	44	1777(5)	22.5(5)	10	17(5)	79.0
Greenbrook, NJ	17	64	4	6	0	16.0
Galloway Twp., NJ	15	99	7.5	1	0	13.2
New Haven, CT	33	393	5	2	4	78.6

### National High Counts for Individual Species

The number of counts reporting each species is given, followed by the number (underlined) and count name for the count with the most individuals of that species. If it is the highest number ever recorded on a Xerces Count (New All-time National High) the number and locality are followed by the previous high count number, location and year in parentheses.

PAPILIONIDAE - Battus philenor 6, 147 Ramsey Canyon; Eurytides marcellus 1, 6 Calvert; Papilio cresphontes 2, 22 Atascosa Highlands; P. eurymedon 9, 16 Mt. Diablo; P. glaucus 16, 13 Inwood Hill Park; P. indra 1, 1 Fort Collins; P. multicaudatus 8, 44 Fort Collins; P. palamedes 1, 1 Pearl River; P. polyxenes 19, 20 Jamaica Bay; P. rutulus 13, 13 Gilpin County; P. troilus 7, 7 Pearl River; P. zelicaon 10, 13 Mt. Diablo/ San Francisco; Parnassius clodius 1, 6 Wahkiakum; P. phoebus 4, 145 Gilpin County (lower & upper).

PIERIDAE - Ascia monuste 1, 1 Pearl River; Colias alexandra 6, 102 Gilpin County; C. cesonia 2, 146 Atascosa Highlands (previous high 132 Atascosa Highlands, 1984); C. eurytheme 34, 101 Willow Slough; C. gigantea 1, 4 Gilpin County-upper; C. interior 1, 4 Muskegon; C. occidentalis 1, 40 Chumstick Mountains (previous high 26 Mt. Pinos, 1977); C. philodice 23, 212 Kanata; Euchloe ausonides 2, 6 Gilpin County-upper; Eurema lisa 1, 6 Washington County; E. mexicana 2, 61 Atascosa Highlands; E. nicippe 5, 82 Atascosa Highlands; E. proterpia 1, 2 Atascosa Highlands; Kricogonia lyside 1, 6 Atascosa Highlands; Nathalis iole 3, 35 Atascosa Highlands; Neophasia menapia 1, 5 Elrod Memorial; Phoebeis agarithe 1, 5 Atascosa Highlands (previous high 2 Atascosa Highlands/ Janes Memorial, 1984); P. sennae 3, 738 Atascosa Highlands (previous high 434 Atascosa Highlands); Pieris napi 3, 20 Gilpin County-upper/ Wahkiakum; P. rapae 32, 1171 Muskegon; Pontia occidentalis 5, 18 Chumstick Mountains; P. protodice 12, 100+ Kern River.

LYCAENIDAE - Feniseca tarquinius 2, 1 Fontenelle/ Pearl River; Apodemia mormo 1, 1 Atascosa Highlands; A. nais 1, 40 Gilpin County (previous high 25 Gilpin County, 1980); A. palmerii 2, 53 Atascosa Highlands (previous high 9 Atascosa Highlands); Calephelis arizonensis 1, 1 Atascosa Highlands; C. nemesis 2, 7 Atascosa Highlands; Emesis ares 2, 11 Ramsey Canyon; E. zela 1, 5 Ramsey Canyon; Lycaena arota 2, 2 Berkeley/ Kern River; L. editha 2, 2 Elrod; L. gorgon 3, 80 Mt. Diablo; L. helloides 5, 45 Kern River; L. heteronea 5, 194 Gilpin County; L. hyllus 1, 4 Ft. Collins; L. mariposa 1, 6 Elrod; L. nivalis 2, 43 Chumstick Mountain; L. phlaeas 7, 65 Northern Westchester; L. rubidus 5, 51 Highline Canal; L. xanthoides 6, 39 Mt. Diablo; Atlides halesus 1, 1 Mt. Diablo; Callophrys apama 4, 11 Gilpin County; Fixsenia ontario 1, 1 New Haven (equals previous high New Haven, 1977); Habrodais grunus 2, 197 Mt. Diablo; Incisalia augustus 2, 3 Kern River (equals previous high Kern River, 1984); Ministrymon leda 2, 15 Atascosa Highlands; Mitoura gryneus 3, 8 Calvert Co.; M. nelsoni 1, 12 Kern River; M. siva 3, 16 Gilpin County; M. spinetorum 2, 5 Gilpin County; Satyrium acadicum 5, 10 Northern Westchester; S. auretorum 1, 1 Mt. Diablo (equals previous high Mt. Diablo, 1984); S. behrii 2, 143 Ft. Collins; S. calanus 7, 116 New Haven; S. californicum 4, 150 Ft. Collins (previous high 50 Ft. Collins, 1977); S. caryaevorum 1, 6 Northern Westchester; S. edwardsii 1, 43 New Haven;

S. fuliginosum 1, 6 Chumstick Mountain (previous high 2 Utopia, OR, 1981); S. liparops 6, 16 Gilpin County; S. saepium 5, 190 Mt. Diablo; S. sylvinus 5, 19 Mt. Diablo; S. tetra 1, 87 Mt. Diablo (previous high 47 Mt. Diablo, 1984); S. titus 9, 45 Northern Westchester; Strymon melinus 18, 41 Palos Verdes; Agriades glandon 2, 26 Gilpin County; Brephidium exilis 5, 327 Willow Slough; Celastrina ladon 19, 228 Ramsey Canyon; Euphilotes battoides 3, 8 Chumstick Mountain/ Palos Verdes; E. enoptes 5, 8 Ft. Collins; Everes amyntula 4, 5 Ramsey Canyon; E. comyntas 15, 54 Northern Westchester; Glauopsyche lygdamus 3, 2 Gilpin County/ Beaver County; G. pius 1, 2 Ft. Collins; Hemiarcus ceraunus 2, 4 Atascosa Highlands; H. isolus 2, 36 Atascosa Highlands; Leptotes marina 4, 128 Palos Verdes; Lycaeides idas 2, 51 Chumstick Mountain; L. melissa 8, 50 Cheyenne; Plebejus acmon 12, 99 Mt. Diablo; P. icarioides 6, 45 Chumstick Mountain; P. neurona 1, 1 Kern River; P. saepiolus 3, 79 Gilpin County (upper); P. shasta 1, 40 Cheyenne; Plebulina emigdionis 1, 100+ Kern River (previous high 35 Kern River, 1982).

LIBYTHEIDAE - Libytheana bachmanii 7, 1373 Atascosa Highlands.

NYMPHALINAE - Adelpha bredowii 5, 46 Mt. Diablo; Agraulis vanillae 2, 59 Palos Verdes (previous high 57 Austin, 1983); Anthanassa texana 2, 3 Atascosa Highlands; Asterocampa celtis 10, 20 Fontenelle; A. clyton 4, 10 Ramsey Canyon/ Fontenelle; A. leilia 1, 11 Atascosa Highlands; Boloria bellona 7, 23 Northern Westchester; B. selene 3, 10 Sioux Canyons; Charidryas gorgone 4, 20 Cheyenne; C. hoffmani 1, 50 Chumstick; C. nycteis 8, 40 Gilpin County; C. palla 5, 21 Gilpin County; Chlosyne lacinia 1, 144 Ramsey Canyon; Dymasia dymas 2, 84 Atascosa Highlands (previous high 63 Atascosa Highlands, 1980); Euphydryas anicia 3, 198 Chumstick; E. chalcedona 4, 91 Mt. Diablo; E. phaeton 3, 14 Northern Westchester; Euptoieta claudia 13, 24 Gilpin County; Junonia coenia 12, 83 Mt. Diablo; J. evarete 2, 63 Atascosa Highlands (previous high 29 Atascosa Highlands, 1984); Limenitis archippus 13, 17 Ramsey Canyon; L. arthemis 12, 71 Val-des-Monts; L. lorquini 6, 87 Chumstick (previous high 30 Chumstick - formerly Swakane, 1984); L. weidemeyer 4, 41 Ft. Collins; Nymphalis antiopa 20, 19 Ramsey Canyon; N. californica 3, 2 Gilpin County; N. milberti 9, 6 Chumstick; N. vau-album 2, 2 Muskegon; Phyciodes campestris 9, 88 Willow Slough; P. mylitta 7, 67 Mt. Diablo; P. pallida 1, 26 Ft. Collins (previous high 25 Ft. Collins, 1977); P. pascoensis 7, 43 Val-des-Monts; P. picta 1, 1 Atascosa Highlands; P. tharos 17, 117 Northern Westchester; Poladryas arachne 1, 5 Gilpin County; Polygonia comma 6, 11 Fontenelle; P. faunus 1, 4 Elrod (previous high 3 Mt. Washington, 1984); P. interrogationis 13, 11 Northern Westchester; P. oreas 1, 1 Berkeley/ Elrod; P. satyrus 7, 5 Gilpin County; P. zephyrus 5, 14 Gilpin County; Speyeria aphrodite 9, 614 Ft. Collins (previous high 389 Ft. Collins, 1984); S. atlantis 4, 40 Gilpin County; S. callippe 6, 160 Mt. Diablo; S. coronis 5, 22 Ft. Collins; S. cybele 15, 131 Northern Westchester; S. edwardsii 5, 40 Cheyenne (previous high 27 Snowy Range, 1980); S. hydaspe 3, 12 Wahkiakum; S. idalia 1, 79 Rowe Sanctuary (previous high 66 Rowe Sanctuary, 1980); S. mormonia 2, 22 Gilpin upper; S. zerene 3, 18 Chumstick; Texola elada 36, 1 Atascosa Highlands; Thessalia theona 2, 4 Atascosa Highlands; Vanessa annabella 6, 21 Palos Verdes; V. atalanta 30, 26 Inwood Hill; V. cardui 12, 25 Highline; V. virginensis 16, 52 Jamaica Bay.

DANAINAE - Danaus gilippus 4, 132 Atascosa Highlands; D. plexippus 21, 69 Kanata (previous high 67 Muskegon, 1984).

SATYRINAE - Cercyonis oeta 5, 79 Gilpin County; C. pegala 15, 295 Highline; C. sthenele 2, 46 Mt. Diablo; Coenonympha tullia 10, 98 Gilpin County; Cyllopsis henshawi 1, 4 Ramsey Canyon; C. pertepida 3, 17 Gilpin County; C. pyracmon [none in 1985 but previous high in 1984 report listed as 10 Gilpin, 1980, should have been 1 Ramsey Canyon, 1983]; Enodia anthedon 5, 13 McGraw; Erebia epipsodea 2, 29 Gilpin upper; Hermeuptychia hermes 1, 3 Pearl River; Megisto cymela 13, 60 Queens County; M. rubricata 1, 6 Ramsey Canyon; Neominois ridingsii 1, 4 Cheyenne; Oeneis chryxus 1, 1 Ft. Collins; O. nevadensis 1, 2 Chumstick; Satyrodes appalachia 1, 1 Northern Westchester; S. eurydice (incl. fumosa).

PYRGINAE - Achalarus casica 2, 2 Atascosa Highlands; A. lyciades 2, 9 New Haven; Autochton cellus 2, 28 Ramsey Canyon; Celotes nessus 1, 16 Atascosa Highlands; Codatractus arizonensis 2, 13 Atascosa Highlands; Cogia caicus 2, 2 Ramsey Canyon; C. hippalus 2, 16 Atascosa Highlands; Epargyreus clarus 19, 125 Northern Westchester; Erynnis afranius 1, 125 Sioux Canyons (previous high 14 Sioux Canyons); E. baptisiae 3, 12 Inwood Hill; E. brizo 1, 1 Ramsey Canyon; E. funeralis 3, 8 Atascosa Highlands/ Palos Verdes; E. horatius 2, 3 Calvert County; E. icelus 1, 1 Chumstick; E. lucilius 1, 1 Kanata (new to counts); E. pacuvius 1, 16 Ramsey Canyon; E. persius 3, 3 Gilpin U+L; E. propertius 2, 2 Mt. Diablo; E. tristis 5, 6 Mt. Diablo; Helioptetes ericetorum 2, 3 Kern River/ Mt. Diablo; Hesperopsis alpheus 1, 1 Ramsey Canyon; Pholisora catullus 13, 37 Sioux Canyons; Polygonus leo 1, 3 Atascosa Highlands; (equals previous high Atascosa Highlands, 1984); Pyrgus albescens 3, 11 Palos Verdes; P. communis 13, 15 Mt. Diablo/ Willow Slough; P. philetas 2, 7 Atascosa Highlands; P. scriptura 1, 8 Willow Slough; Staphylus ceos 2, 13 Ramsey Canyon; S. hayhurstii 2, 5 Fontenelle (previous high 3 Austin, 1983); Systasea pulverulenta 1, 1 Atascosa Highlands; Thorybes drusius 2, 14 Atascosa Highlands; T. pylades 5, 55 Atascosa Highlands; Urbanus dorantes 2, 28 Atascosa Highlands (previous high 15 Atascosa Highlands, 1984).

PYRRHOPYGINAE - Pyrrhopyge araxes 2, 473 Atascosa Highlands.

HESPERIINAE - Amblyscirtes aenus 2, 4 Atascosa Highlands/ Gilpin County; A. cassus 2, 2 Ramsey Canyon; A. exoteria 2, 15 Atascosa Highlands; A. fimbriata 1, 6 Ramsey Canyon; A. nereus 1, 1 Ramsey Canyon; A. nysa 1, 1 Ramsey Canyon; A. oslari 2, 2 Cheyenne; A. simius 1, 18 Cheyenne (previous high 1 Sioux Canyons, 1984); Ancyloxypha numitor 7, 11 Queens County; Atalopetes campestris 5, 102 Calvert; Atrytone arogos 2, 89 Gilpin County; A. delaware 9, 27 Northern Westchester (previous high 19 New Haven, 1982); Atrytonopsis lunus 1, 1 Ramsey Canyon; Copaeodes aurantiaca 2, 9 Ramsey Canyon; C. minima 1, 2 Pearl River; Euphyes bimacula 1, 1 Ft. Collins; E. conspicua 2, 8 Northern Westchester; E. vestris 9, 524 Ft. Collins; Hesperia comma 3, 18 Ramsey Canyon; H. lindseyi 2, 25 Mt. Diablo (previous high 11 Mt. Diablo, 1983); H. nevada 4, 3 Gilpin County; H. ottoe 1, 8 Gilpin County (previous high 2 Gilpin County, 1980); H. pahaska 4, 23 Atascosa Highlands; H. uncas 3, 3 Sioux Canyons; H. viridis 2, 12 Gilpin County; Hylephila phyleus 8, 157 Palos Verdes; Lerodea eufala 4, 4 Ramsey Canyon/ Palos Verdes; Oarisma garita 5, 105 Ft. Collins (equals previous high Springerville 1980); Ochlodes

agricola 2, 207 Mt. Diablo; O. snowi 1, 7 Gilpin County; O. sylvanoides 5, 256 Chumstick (previous high 150+ Paonia Reservoir, 1982); O. yuma 1, 1 Mt. Diablo; Paratrytone melane 4, 24 San Francisco; Piruna pirus 3, 76 Ft. Collins; P. polingi 1, 28 Ramsey Canyon (previous high 26 Ramsey Canyon, 1983); Poanes hobomok 3, 11 Cleveland Heights; P. massasoit 2, 11 McGraw; P. taxiles 5, 69 Gilpin County; P. viator 4, 220 Jamaica Bay (previous high 95 Jamaica Bay, 1984); P. zabulon 2, 2 Jamaica Bay; Polites coras 4, 6 Morton Elrod; P. mystic 3, 171 Ft. Collins (previous high 110 Spruce Knob, 1983); P. origenes 6, 23 Gilpin/ Westchester; P. sabuleti 4, 16 Palos Verdes; P. themistocles 5, 15 Ft. Collins; Pompeius verna 4, 36 Northern Westchester; Pseudocopaeodes eunus 1, 6 Kern River (previous high 4 Kern River, 1981); Thymelicus lineola 8, 730 Val-des-Monts; Wallengrenia egeremet 6, 149 Northern Westchester (previous high 73 Ft. Belvoir, 1978).

ZONE I. SOUTHWEST  
(Arizona, California)

Atascosa Highlands, AZ. 31°27'N, 111°11'W, center nr Corral Nueva, NW side of Atascosa Mts. Habitat coverage previously described, 1980 report. 17 August 1985; 0730-1700 hrs; mostly clear in AM, partly cloudy in PM; 18-37°C; wind SW to 20 km/h. Seven observers in three parties. Total party hours 22 (15 on foot, 7 by car); total party miles 36 (8 on foot, 28 by car). Observers: R. Bailowitz (3920 Paseo Dorado, Tucson, AZ), J. Brock, D. Danforth, E. Draeger, L. Fratt, G. Lindburg, A. Moorhouse. Conservation status etc. same as previous year. Changes since last year: none. Battus philenor 113, Papilio cresphontes 22, P. multicaudatus 38, P. polyxenes 1, Colias cesonia 146, C. eurytheme 2, Eurema mexicana 61, E. nicippe 82, E. proterpia 2, Kricogonia lyside 6, Nathalis iole 35, Phoebis agarithe 5, P. sennae 738; Pontia protodice 11, Apodemia mormo 1, A. palmerii 53, Calephelis arizonensis 7, C. nemesis 1, Emesis ares 2, Ministrymon leda 15, Strymon melinus 8, Brephidium exilis 1, Hemiaricus ceraunus 4, H. isola 36, Plebejus acmon 1, Leptotes marina 89, Adelpha bredowii 2, Agraulis vanillae 10, Anthanassa texana 3, Asterocampa celtis (montis) 7, A. clyton (subpallida) 1, A. leilia 11, Dymasia chara 84, Euptoieta claudia 4, Junonia coenia 5, J. evarete (nigrosuffusa) 63, Limenitis arthemis (arizonensis) 1, Phyciodes picta 1, Texola elada 36, Thessalia theona 4, Vanessa virginiensis 1, Danaus gilippus 132, D. plexippus 2, Libytheana bachmanii 1373, Achalarus casica 2, Autochton cellus 12, Celotes nessus 16, Codatractus arizonensis 13, Cogia caicus 1, C. hippalus 16, Erynnis funeralis 8, E. tristis 2, Pholisora catullus 2, Polygonus leo 3, Pyrgus albescens 3, P. philetas 7, Staphylus ceos 6, Systasea pulverulenta 1, Thorybes drusius 14, T. pylades 55, Urbanus dorantes 28, Pyrrhopyge araxes 473, Amblyscirtes aenus 4, A. cassus 1, A. exoteria 15, Copaeodes aurantiaca 5, Hesperia pahaska 23, Lerodea eupala 1 (all species ID in net). Total 69 species, 3205 individuals. Field notes: Fewer participants made the high country coverage poorer, but the main problem was the sporadic rains. The western half of the circle looked especially dry. No stray species seen.

Ramsey Canyon, AZ. 26°10'N, 112°20'W, center 2.5 mi. ESE Nicksville (see previous report for habitat and coverage). Elev.: 1250-2900 m. 10 August 1985; 0600-1700 hrs.; mostly cloudy with intermittent rain in AM, partly cloudy with intermittent rain in PM; 12-26°C; wind SE, 0-15 km/hr. Twenty-four observers in six parties. Total party hours 52 (43 on foot, 9 by car), total party miles 189 (44 on foot, 145 by car). Observers: R. Bailowitz, N. Blindauer, J. & H. Church, T. Collazo (RR 1, Box 84, Hereford, AZ 85615), D. Danforth, A. Douglas, E. Draeger, E. Franzgrote, L. Fratt, A. Goodrich, E. Greenapple, T. Jensen, P. Jump, K. Kamp, P. Knisely, E. Kuntz, A. Moorhouse, T. Posedly, B. Simmons, P. Sonneborn, D. Thrapp, B. & J. Witzeman. Conservation status of area surveyed: Imminent threats to habitats: Development in San Pedro Valley. Changes since last year: None. Battus philenor 147, Papilio multicaudatus 9, P. polyxenes 1,

Colias cesonia 10, C. eurytheme 98, Eurema mexicana 9, E. nicippe 15, Nathalis iole 5, Phoebis sennae 128, Pieris rapae 2, Pontia protodice 98, Apodemia palmeri 1, Calephelis nemesis 4, Emesis ares 11, E. zela 5, Ministrymon leda 8, Mitoura siva 3, Strymon melinus 5, Brephidium exilis 8, Celastrina ladon 228, Everes amyntula 5, Hemiaricus ceraunus 1, H. isola 14, Leptotes marina 21, Plebejus acmon 1, Libytheana bachmanii 42, Adelpha bredowii 45, Anthanassa texana 1, Asterocampa celtis (as montis) 1, A. clyton (as subpallida) 10, Chlosyne lacinia 144, Dymasia dynas 3, Euptoieta claudia 5, Junonia coenia 8, J. evarete (nigrosuffusa) 3, Limenitis archippus 17, L. arthemis (arizonensis) 12, Nymphalis antiopa 19, Phyciodes mylitta 16, Polygonia satyrus 2, Thessalia theona 3, Vanessa atalanta 2, V. cardui 7, V. virginiensis 1, Cyllopsis henshawi 4, C. pertepida 15, Megisto rubricata 6, Danaus gilippus 71, D. plexippus 15, Achalarus casica 1, Autochton cellus 28, Codatractus arizonensis 5, Cogia caicus 2, C. hippalus 4, Epargyreus clarus 1, Erynnis brizo 1, E. funeralis 4, E. pacuvius 16, E. tristis 5, Hesperopsis alpheus 1, Pholisora catullus 2, Pyrgus albescens 5, P. philetas 4, Staphylus ceos 13, Thorybes drusius 11, T. pylades 45, Urbanus dorantes 1, Pyrrhopyge araxes 467, Amblyscirtes cassus 2, A. exoteria 3, A. fimbriata 6, A. nereus 1, A. nysa 1, Attytonopsis lunus 1, Copaeodes aurantiaca 9, Hesperia comma 18, Hylephila phyleus 1, Lerodea eupala 4, Piruna polingii 28, Poanes taxiles 40. Total 80 spp., 1960 individuals. All species net and release.

Berkeley, CA. 37°53'N, 122°17'W. See 1975 report for complete area and habitat description. Elev: 0-400 m. 22 June 1985; 1015-1750 hrs; mostly cloudy with some fog all day (esp. western half of circle); 14-22°C; wind W, SW; nine observers in seven parties. Total party hours 22.15 (18 on foot, 4.15 by car, not observing); total party miles 100+ (21.3 on foot, remainder by car). Observers: J. Brown, P. Brown, M. Buegler, J. DeBenedictis, A. Kaplan, R. Langston, S. Meredith, D. Powell, J. Powell (201 Wellman Hall, University of California, Berkeley, CA 94720). Uses of land: see 1982, 1983 reports; Uniqueness and imminent threats to habitats: none; Changes noticed since last year: Extensive coastal fog spreading inland is not unusual in June but it persisted throughout count day in the western half of circle, rendering all our Berkeley Hills, coastal and urban counts poor to impossible. The results should not be compared with previous years for purposes of judging trends in diversity or abundance. Urban species were not censused adequately to compare. Battus philenor 16 (S), Papilio eurymedon 7 (S), P. rutulus 7 (S), Colias eurytheme 14 (S), Euchloe ausonides 5 (C), Pieris rapae 89 (S), unid. pierid 1 (S), Lycaena arota 2 (S), L. helloides 1 (S), L. gorgon 1 (C), L. xanthoides 7 (N), Habrodais grunus 3 (S), Satyrium sylvinus (dryope) 1 (S), Strymon melinus 4 (S), Celastrina ladon 10 (S), Euphilotes enoptes 6 (C), Everes comyntas 1 (C), Plebejus acmon 46 (N), unid. lycaenids 4 (S), Adelpha bredowii 2 (S), Charidryas palla 3 (S), Euphydryas chalcedona 51 (S), Junonia coenia 36 (S), Limenitis lorquinii 3 (S), Nymphalis antiopa 7 (S), Phyciodes mylitta 31 (S), Polygonia

oreas 1 (S), P. satyrus 1 (S), Speyeria sp. (prob. coronis) 3 (S), Vanessa annabella 6 (S), V. atalanta 2 (S), V. cardui 1 (C), unid. nymphalines 2 (S), Cercyonis pegala 36 (S), Coenonympha tullia (california) 15 (S), Danaus plexippus 3 (S), Erynnis tristis 3 (S), unid. Erynnis 2 (S), Pyrgus communis 11 (S), Hylephila phyleus 3 (S), Ochlodes agricola 54 (N), O. sylvanoides 1 (S), Paratrytone melane 20 (S), Polites sabuleti 11 (S), unid. hesperiids 5 (S), unid. butterfly 1 (S). Total 41 species, 547 individuals. Species seen during count week but not on count day: Anthocharis sara, Agraulis vanillae, Phyciodes campestris, Speyeria coronis. Larvae seen: Battus philenor 100+ on Aristolochia californica, Papilio zelicaon 16 on Foeniculum vulgare, Vanessa atalanta 2 on Urtica holosericea, V. annabella 2 +1 pupa on Saxifraga punctata. Field notes: Persistent coastal fog precluded normal count on the day selected. Six parties counted only 7 to 25 species ( $x = 16$ ) and averaged 12 to 44.5 individuals/hour. Urban situations were surveyed only during 3 hrs, yielding 22 species, 40/hr. Overall we averaged only 30.4 butterflies/party hr, a considerably lower rate than any of the ten previous counts.

A 2.67 hr count on 25 June at two sites in the Berkeley Hills (fogged over on count day) produced butterflies at a rate of 95.5/hr (28 spp.), and a one hr urban count in Berkeley a week after count day yielded 64 individuals (12 species). These are abundance levels approximately equivalent to our 1984 totals.

Kern River Valley, CA. 39°20'N, 118°28'W, center 3 1/2 miles NNW from town of Lake Isabella, includes Lake Isabella, N to Kernville, E to Weldon & Kern River Preserve, S to Hooper Hill & Bodfish Peak, W to Greenhorn Mts and Shirley Meadows. Elev.: 686-2266 m. Habitat coverage: See 1983 count report. 8 June 1985; 0830-1600 hrs; clear all day; 10-23°C; wind SW, 0-40 km/hr. Eighteen observers in three parties. Total party hours 21 (17 on foot; 4 by car); total party miles 180 (10 on foot, 170 by car). Observers: J. Alexander, B. Allen, T. Amantia, K. Bushling, D. Chang, T. Cormack, K. Davenport, R. Hall, R. Hewett (P.O. Box 1662, Weldon, CA 93283), J. McDaniel, D. Meyer, K. Smith, V. Smith, L. Strawn, M. Wombacher, Brian, Mick. Conservation status of area surveyed; Uses of land: Private, U.S. Forest Service, Bureau of Land Management, Nature Conservancy. Most land is either open grazing land or private ranchland. Some small developments, but basically rural. Uniqueness of habitats: Since the Kern River Valley is primarily set in a semi-desert area, the presence of water in variety of habitats makes for rare or unique combinations. Some of the more noteworthy sites include 1000 acres (400 ha) of riparian woodlands along the South Fork Kern River; alkali meadows; wet mtn. meadows; small creeks. Imminent threats to habitats: The southern boundary of the count circle in Piute Mts. was severely burnt and flooded in July 1984. Although many areas censused in past years were not damaged, the scale of alteration was large (i.e. 20,000+ acres - 8000 ha). Although land is primarily open federal and rural in character, the human development around

the Kern River Valley continues to expand. Some sites will be lost, but the vast majority of good butterfly areas will be protected. Papilio eurymedon 5, P. rutulus 5, Eurema nicippe 1, Colias eurytheme 7, Pieris rapae 100+, Pontia protodice 100+, Apodemia mormo 15, Brephidium exilis 200+, Celastrina ladon 2, Euphilotes battoides 1, Plebejus acmon 25, P. icarioides 1, P. neurona 1, Plebulina emigdionis 100+, Incisalia augustus 3, I. eryphon 1, Mitoura nelsoni 12, Satyrium californicum 3, S. saepium 150, S. sylvinus 12, Strymon melinus 2, Lycaena arota 2, L. gorgon 2, L. helloides 45, Adelpha bredowii 2, Euphydryas chalcedona 7, Junonia coenia 3, Nymphalis antiopa 6, N. californica 1, N. milberti 5, Phyciodes mylitta 25, Speyeria callippe 3, S. hydaspe viridicornis 1 (endemic to Greenhorn Mts), Vanessa annabella 3, Danaus gilippus 2, D. plexippus 11, Coenonympha tullia (california) 3, Erynnis propertius 1, Helioptetes ericetorum 3, Pyrgus communis 6, Hesperia lindseyi 2, Polites sabuleti 3, Pseudocopaeodes eunus 6. Total 43 spp., about 887+ individuals. No indication whether butterflies S, N, or C (ed.). Field notes: This was another unusual season, with a wet fall but an extremely dry winter and spring. Relatively cool temperatures persisted through the spring, but a considerable warming trend occurred just before the count. The number of species and individuals were significantly higher than for the two previous counts, concentrated at abundant flowering of wild buckwheat (Eriogonum) and other flowers. Several new species were found on this count, including Helioptetes ericetorum, Eurema nicippe, Euphilotes battoides, Lycaena arota, Incisalia eryphon, and Nymphalis antiopa.

Mt. Diablo, CA. 37°57'N, 121°52'W. See 1980 report for site and habitat description. 21 June 1985; 0950 to 1710 hrs; mostly clear all day; 20-25°C; wind W-NW. Seven observers in four parties. Total party hours 26.5 (20.5 on foot, 6 by car, not observing); total party miles 117.25 (20.75 on foot, 97 by car, not observing). Observers: J. Brown, M. Buegler, J. DeBenedictis, S. Meredith, K. Osborne, D. Powell, J. Powell (201 Wellman Hall, Univ. California, Berkeley 94720). Conservation status, Land uses, Uniqueness: See 1980 report. Imminent threats to habitats: Continued encroachment of weeds and the resultant exclusion of native perennial seedlings, together with periodic fires threaten the native vegetation of the Antioch Dunes National Wildlife Refuge. Changes noticed since last year: There were five fires at the Antioch NWR last year. Although one was the result of fallen power lines, the possibility of retaliation against exclusion of fishermen and other public access cannot be ruled out as a cause for fires. Battus philenor 1 (S), Papilio eurymedon 16 (S), P. multicaudatus 38 (S), P. rutulus 6 (S), P. zelicaon 13 (S), unid. Papilio 7 (S), Colias eurytheme 42 (S), Pieris rapae 127 (S), Pontia protodice 2 (S), Lycaena gorgon 80 (C), L. helloides 2 (C), L. xanthoides 39 (N), Atlides halesus 1 (C), Habrodais grunus 197 (S), Mitoura spinetorum 1 (C), Satyrium auretorum 1 (C), S. saepium 190 (C), S. sylvinus (dryope) 19 (N), S. teta 87 (C), Strymon melinus 11 (S), Celastrina ladon 42 (S), Everes comyntas 7 (C),

Plebejus acmon 99 (S), unid. lycaenids 31 (S), Adelpha bredowii 46 (S), Charidryas palla 3 (N), Euphydryas chalcedona 91 (S), Junonia coenia 83 (S), Limenitis lorquini 11 (S), Nymphalis antiopa 10 (S), Phyciodes mylitta 67 (S), Polygonia satyrus 1 (S), Speyeria callippe 160 (N), Vanessa annabella 4 (S), V. atalanta (1 larva), V. cardui 1 (N), unid. Vanessa 2 (S), Danaus plexippus 22 (S), unid. nymphalines 3 (S), Coenonympha tullia (california) 34 (S), Cercyonis sthenele (silvestris) 45 (C), Erynnis propertius 2 (C), E. tristis 6 (S), Helioptetes erectorum 3 (S), Pholisora catullus 8 (S), Pyrgus communis 15 (S), Atalopedes campestris 2 (C), Hesperia lindseyi 25 (C), Hylephila phyleus 8 (N), Ochlodes agricola 207 (N), O. sylvanoides 4 (N), O. yuma 1 (C), Paratrytone melane 7 (S), unid. hesperiines 5 (S). Total 49 spp., about 1947 individuals. Larvae seen: Papilio zelicaon 7 on Foeniculum vulgare, Vanessa atalanta 1 on Urtica holosericea, Euphydryas chalcedona 500+ on Mimulus aurantiaca, Danaus plexippus 10 on Asclepias californica, Lycaena gorgon 38 eggs on Eriogonum latifolium nudum. Total 5 spp., about 556+ individuals. Field notes: Strong, cool winds, originating from coastal fog conditions, undoubtedly reduced activity of butterflies and of observed abundance, particularly in exposed areas along the river delta (although we averaged 96 individuals/hr). Two Mt. Diablo parties tallied 32 species each while observing at rates of 113 and 143 inds/hr. Foothill and river delta-urban parties logged 25 and 20 species and only 50-52 butterflies/hr. A thorough survey of the Antioch National Wildlife Refuge could not be carried out because a warden refused to permit our observers to walk on the property; only 11 species were recorded there.

Palos Verdes Peninsula, CA. 33°44'N, 118°22'W, center 0.7 mi WSW intersection Palos Verdes Drive North and Palos Verdes Drive East, includes Redondo Beach, Torrance, Wilmington, San Pedro, and Palos Verdes Peninsula. Habitat coverage: See 1981 report. 6 July 1985; 0900 to 1400 hrs; AM mostly cloudy, PM mostly clear; 21-23°C; wind W, 0-10 km/hr. Forty-three observers in one to seven parties. Total party hours 25 (24 on foot, 1 by car); total party miles 43 (24 on foot, 19 by car). Observers: M. Ackerman, M. Baker, I. & I. Barlay, E. Brubaker, B. Buzzini, M. & S. Byhower, K. Chaney, G. Dixon, J. Donahue, G. Foster, J. Gault, N. & S. Gambee, D. & H. Geiger, C. & N. Hammond, E., L. & L. Hansen, R. Hubacek, G. & S. Kitazqua, T. Lahey, A. Leigh, K. Malloy, K. Mohaner, D. & H. Morton, J. Morton (787 W 4th Street, San Pedro, CA 90731), L. Muller, C. Parisek, B. Shaw, J. Snider, H. & N. Spear, M. Tekulsky, S. Van Der Sluis, J. & S. Wiseman, W. Wright. Conservation status, etc.: See 1981 report. Changes since last year: None. Papilio rutulus 3 (S), P. zelicaon 4 (S), Colias eurytheme 8 (N), Pieris rapae 640 (N), Pontia protodice 5 (N), Strymon melinus 41 (N), Brephidium exilis 230 (N), Euphilotes battoides 8 (C), Leptotes marina 128 (N), Plebejus acmon 21 (C), Agraulis vanillae 59 (S), Junonia coenia 25 (N), Nymphalis antiopa 2 (S), Vanessa annabella 21 (N), V. atalanta 2 (S), V. cardui 5 (C), V. virgininiensis 1 (C), Danaus plexippus 3 (S), Erynnis funeralis 8 (G = genitalia

dissected), Pyrgus albescens 11 (G), Atalopedes campestris 43 (C), Hylephila phyleus 157 (C), Lerodea eufala 4 (C), Ochlodes sylvanoides 5 (C), Paratrytone melane 9 (C), Polites sabuleti 16 (S). Total 26 spp., about 1465 individuals. Larvae seen: Papilio zelicaon 4 on Foeniculum vulgare, Agraulis vanillae 2 on Passiflora sp. Total 2 spp., about 6 individuals. Field notes: A relatively dry year with insects emerging a week or so earlier than normal.

San Francisco, CA. 37°47'N, 122°25'W, see 1984 report for center and habitat description. 15 June 1985; 1030-1730 hrs; clear all day; 18-24°C; wind NW 8-32 km/hr. Seventeen observers in one to three parties. Total party hours 9 (all on foot), total party miles 5 (all on foot). Observers: J. & R. Briggs, P. Bunetsky, G. Falkenhagen, B. Glaser, J. Gustafson, E. Lyons, B., M., & W. Nord, H. Reinhard (23 Belmont Ave., San Francisco, CA 94117), W. Reinhard, P. Selby, B. & Z. Shaffer, M. Shaw, P. Tolbert. Conservation status of area surveyed: Uses of land: Residential gardens; city park, part of which has been left undeveloped; remnant of land between golf course and residences on south and buildings on north. Imminent threats to habitats: Invasion by introduced plants in park, esp. French broom; in remnant of oak woodland, esp. Acacia sp. and Senecio mikanioides (German ivy). Changes noted since last year: Count made full month earlier, so uncultivated areas much less dried out. Almost no butterflies seen this year in neighborhood of Belmont Ave., so another neighborhood about 2 km E observed instead. Papilio rutulus 7 (S), P. zelicaon 13 (N), P. rapae 41 (N), Colias eurytheme 2 (S), Celastrina ladon 4 (S), Euphydryas chalcedona 6 (N), Junonia coenia 10 (N), Phyciodes campestris 1 (S), Vanessa annabella 10 (N), V. atalanta 1 (S), Pyrgus communis 1 (N), Paratrytone melane 24 (S). Total 12 species, about 120 individuals. Larvae seen: Papilio zelicaon 1 (and 15 ova) on Foeniculum vulgare, Vanessa annabella 6 on Malva neglecta, V. virgininiensis 5 on Gnaphalium sp., Pieris rapae 8 (ova) on Brassica sp. Field notes: Last year's financial district observer not available this year but reports P. rutulus plentiful on other days during count week. Site #3 is historic locale for Battus philenor in San Francisco, but search failed to reveal this species despite presence of its foodplant Aristolochia californica. Few C. ladon sighted, but this possibly due to count date which was too early for second brood. In July this species was again common.

UCLA Campus, Los Angeles, CA. 34°04'N, 118°27'W, center SW of campus perimeter. See 1980 report for area covered. 28 July 1985; 1515-1815 hrs; PM mostly clear; 21-24°C; wind WSW 8-16 km/hr. One observer. Total party hours 3 (all on foot); total party miles 3 (all on foot). Observers: W. Bakewell (10824 Lindbrook Dr., Apt. 109, Los Angeles, CA 90024). Conservation status of area surveyed: Uses of land: University campus and university botanical garden. Changes noticed since last year: New construction is always in progress on UCLA campus. Papilio rutulus 5, Pieris rapae 4, Leptotes marina 4, Vanessa atalanta 1, Hylephila phyleus 6. All species (S). Total 5 spp., 20 individuals.

Willow Slough, Yolo County, CA.  $38^{\circ}34'N$ ,  $121^{\circ}44'W$ , center 2.6 km N of Slide Hill Park, City of Davis. See earlier reports for included habitats and included area. 4 July 1985; 0900-1330 hrs; mostly clear all day;  $24-34.5^{\circ}C$ ; wind variable E-SE 0-5 km/hr. One observer in one party. Total party hours 4.5 (all on foot); total party miles 8 (all on foot). Observers: A. Shapiro (Dept. Zoology, Univ. California, Davis, CA 95616). Changes noticed since last year: Vegetation very tall and rank. Melanoplus grasshoppers still in outbreak, some adults already. Willow trees becoming mature and casting significant shade in some areas. Papilio zelicaon 11, Colias eurytheme 101, Pieris rapae 139, Brephidium exilis 327, Everes comyntas 23, Lycaena heliooides 3, L. xanthoides 1, Plebejus acmon 20, Satyrium sylvinus 1, Strymon melinus 23, Limenitis lorquini 2, Phyciodes campestris 88, P. mylitta 3, Junonia coenia 11, Vanessa annabella 2, V. atalanta 1, V. cardui 5, Danaus plexippus 22, Erynnis tristis 4, Pyrgus communis 15, P. scriptura 8, Atalopedes campestris 25, Hylephila phyleus 15, Lerodea eufala 2. Total 24 species, about 701 individuals. All IDs (S). Larvae seen: Pieris rapae 18 on Lepidium latifolium, Vanessa annabella 3 on Malva neglecta. Total 2 species, about 21 individuals. Field notes: The 1985 count is almost identical to the 1984, which had 746 in 24 species (2 different). This is perhaps not surprising given the great similarity of the two years' weather. In both years rainfall was heavy before Christmas and virtually nonexistent thereafter, leading to a dry and early spring. Atalopedes campestris was numerous for 2nd straight year; Limenitis lorquini has clearly colonized the site; not a very good Vanessa cardui year; Satyrium sylvinus recorded only one previous year (1980); Pontia protodice absent for 8th straight year; despite two hot summers in a row, still no fires since 1978. Phyciodes campestris still early in flight, but clearly back on trivoltine schedule after being bivoltine in 1982 and 1983. First time in 9 years of count that Pholisoria catullus was missed; it is having a terrible year in vicinity of Davis.

#### ZONE II: NORTHWEST (Washington)

Chumstick Mountains (formerly Swakane Canyon), WA.  $47^{\circ}37'N$ ,  $120^{\circ}20'W$ , Chumstick Mountain Lookout, includes the Chumstick and Entiat Mountains between Columbia River on east, Entiat River on north, Wenatchee River on south, to Sugarloaf Peak on NW, Swakane Canyon on SE, elevation 220 to 1820 m; habitat coverage (see 1984 report) also agricultural valley and Abies procera subalpine. 13 July 1985; 0930 to 1830 hrs. Clear all day;  $27-32^{\circ}C$ ; wind E 0-5 km/hr. Eleven observers in one to two parties. Total party hours 12 (6 on foot, 6 by car); total party miles 63 (3 on foot, 60 by car). Observers: Joel & John Bernatz, J. Christy, L. Coulet, D. Hellyer, Thea & Tom Hellyer, R. Kelley, S. Kelley, R. Ortiz-Torres, R. Pyle (Swede Park, 369 Loop Road, Gray's River, WA 98621). Conservation status of area surveyed: See 1984 report; Imminent threats to habitats: Forest fire danger caused closure of Swakane Canyon, forced alteration of circle; subsequently, fires did occur

within the circle. The extent of damage to habitats has not yet been examined or evaluated; Changes noticed since last year: Much drier in lowlands due to an early year with low rainfall. Papilio zelicaon 1 (S), P. eurymedon 1 (S), P. rutulus 8 (N), Colias occidentalis 40 (N), C. eurytheme 1 (S), C. philodice 4 (N), Pieris rapae 2 (N), Pontia occidentalalis 18 (N), Lycaena heteronea 22 (N), L. nivalis 43 (N), Satyrium californicum 2 (C), S. fuliginosum 6 (C), S. saepium 1 (S), Euphilotes battoides 8 (N), Clauropsyche lygdamus 1 (N), Lycaeides idas 51 (N), L. melissa 1 (N), Plebejus acmon 1 (N), P. icarioides 45 (N), Charidryas hoffmanni 50 (C), Euphydryas anicia 198 (C), Limenitis lorquini 87 (S), Phyciodes campestris 3 (N), Polygonia zephyrus 1 (N), P. satyrus 2 (N), Nymphalis antiopa 2 (S), N. milberti 6 (N), Speyeria callippe 2 (N), S. coronis 9 (N), S. cybele (leto) 1 (S), S. zerene 18 (N), Cercyonis oetus 59 (N), S. pegala 50 (C), Coenonympha tullia (ampelos) 1 (N), Oeneis nevadensis 2 (C), Erynnis persius 2 (C), Hesperia comma 2 (C), Ochlodes sylvanoides 256 (N), Papilio unid. 5 (S), Colias unid. 7 (S), Pieris unid. 5 (S), Plebejus unid. 87 (S), Speyeria unid. 128 (S). Total 38 species, 1239 individuals. Field notes: Notable was the appearance of two individuals of O. nevadensis, a biennial species normally absent during odd-numbered years in Washington. Limenitis lorquini and Euphydryas anicia were dramatically numerous, the latter nectaring chiefly on composites by the roadside. Note: center of count circle changed, since much of original circle closed to public entry and may be so for many years. All areas counted in 1984 are within new circle which generally contains higher elevation, moister habitats more likely to have butterflies in July.

Western Wahkiakum County, WA.  $46^{\circ}20'N$ ,  $123^{\circ}30'W$ , center Swede Park, Gray's River, includes all of western Wahkiakum County including Gray's Bay on the Columbia River, east to Skamokawa and southern Pacific County, in the Willapa Hills; elevation 0 to 800 m; habitat coverage (see 1980 count). 19 July 1985; 1200 to 1800 hrs. Clear all day; 24 to  $32^{\circ}C$ ; no wind. Four observers in one party. Total party hours 6 (5 on foot, 1 by car); total party miles 26 (8 on foot, 18 by car). Observers: D. Hellyer, Thea and Tom Hellyer, R. Pyle (Swede Park, 369 Loop Road, Gray's River, WA 98621). Conservation of land surveyed: Uses of land: Private timberlands and farms; intensive forestry and agriculture; abandoned lookout hill and access road; Uniqueness of habitats: See 1980 report, Hull Creek Lookout unusual in having been free of logging for several decades, and in having a cleared summit that resembles an open, flowery mountain bald; Imminent threats to habitats: Logging and herbicide spraying always actual or pending in various parts of the circle. Parnassius clodius 6 (N), Papilio eurymedon 1 (S), P. rutulus 3 (S), P. zelicaon 1 (S), Pieris napi 20 (N), Limenitis lorquini 1 (S), Phyciodes mylitta 4 (N), Speyeria hydaspe 12 (C), S. unid. 1 (S), Vanessa atalanta 5 (S). Total 9 species, about 58 individuals. Larvae seen: Pieris rapae 4 on broccoli. Total 1 species, 4 individuals. Field notes: The discovery of S. hydaspe represents a new county record for both Wahkiakum and Pacific

Counties. A dry sunny summer has accounted for greater numbers of butterflies than have been seen in any of the 10 preceding years.

ZONE III. ROCKY MOUNTAINS  
(Colorado, Montana, Wyoming)

Morton Elrod Memorial, Stevensville, MT. 46°32'N, 114°06'W, center point common to Sections 3, 4, 9, 10, T9N, R20W, includes Bass Creek, St. Mary's Peak, Lee Metcalf Wildlife Refuge, elevation 1104 to 2844 m; habitat coverage includes mountain stream with conifers, willow, knapweed, bushes, and wet meadowland with grasses and cattails. 20 July 1985; 0900 to 1500 hrs. Clear all day; 25 to 34°C; no wind. Four observers in one party; total party hours 6 (all on foot); total party miles 7 (all on foot). Observers: S. Kohler, C. Odegard, J. Story, B. Weber (P.O. Box 692, Lolo, MT 59847). Conservation status of area surveyed: Uses of land: U.S. Forest Service land bordering the Selway-Bitterroot Wilderness, nearby campground. Ranch meadowland used for grazing; Imminent threats to habitats: none. Parnassius phoebus 2, Papilio multicaudatus 3, P. zelicaon 1, Colias alexandra 56, C. eurytheme 1, C. philodice 5, Neophasia menapia 5, Pieris napi 2, Pontia occidentalis 1, Lycaena editha 2, L. heteronea 1, L. mariposa 6, Satyrrium saepium 1, S. sylvinus 8, S. titus 1, Everes amyntula 1, Lycaeides idas 21, Boloria selene 1, Limenitis archippus 10, L. lorquini 39, Phyciodes campestris 3, P. mylitta 12, P. pascoensis 4 (reported as P. tharos), Polygonia faunus 4, P. oreas 1, P. satyrus 4, P. zephyrus 1, Speyeria aphrodite 1, S. cybele 47, S. hydaspe 7, S. zerene 9, Cercyonis oetus 15, C. pegala 46, Hesperiella comma 6, Oarisma garita 12, Ochlodes sylvanoides 19, Polites coras 6. Total 39 species, 465 individuals. Larvae seen: Papilio zelicaon 1 (host not recorded). Total 1 species. 1 individual. Field notes: This is the first year for this count which is named in honor of the late Morton Elrod, the author of "The Butterflies of Montana" and long-time student and writer on Montana butterflies.

Cheyenne, WY-CO. 41°04'N, 104°54'W, center 4.5 N WY-CO state line on Interstate 25, includes portions of Laramie Co., WY, as well as Larimer and Weld Cos., CO. Areas counted include N Cheyenne along Crow Creek, ridges to E of I-25 near stateline on Terry Ranch in Weld Co. and Laramie Co., edge of WY 223 E of I-25. el. 1737-1898 m; Habitat coverage: urban plantings - 5%, weedy road edges - 10%, stream edge and meadow - 15%, blow-outs with cushion plants in short-grass prairie - 35%, ridges with mountain mahogany and prairie - 35%. 15 June 1985, 0800-1530 hrs; AM mostly clear, PM partly cloudy; 16-29°C, wind NW 5-30 km/hr. One observer in one party; total party hours 7.5 (6.5 on foot, 1 by car); total party miles 26 (6 on foot, 20 by car). Observer: P. Opler (5100 Greenview Ct., Ft. Collins, CO 80525). Conservation status of area surveyed: Uses of land: Cultivated city yards, mowed road edges and fields, and areas grazed by cattle; Uniqueness of habitats: chalky and gravelly blowouts near state line have relict plant populations

dominated by cushion plants in midst of short-grass prairie area; Imminent threats to habitats: Flash flood and heavy rains in August (after count) caused loss of life and flooding in Cheyenne -- scouring of Crow Creek vegetation. Changes since last year: first year count. Papilio multicaudatus 6 (S), P. polyxenes 1 (S), Colias alexandra 5 (S), C. eurytheme 6 (S), C. philodice 8 (S), Pontia occidentalis 17 (P=photo), P. protodice 12 (S), Lycaena helloides 30 (C), L. rubidus 2 (S), Callophrys apama 8 (P), Euphilotes enoptes 2 (C), Lycaeides melissa 50 (C), Plebejus acmon 2 (C), P. icarioides 6 (C), P. shasta 40 (C), Charidryas gorgone 20 (C), Euptoieta claudia 1 (S), Nymphalis antiopa 2 (S), N. milberti 2 (P), Phyciodes campestris 8 (C), P. tharos 13 (C), Speyeria aphrodite 1 (C), S. callippe 23 (N), S. edwardsii 40 (N), Vanessa atalanta 1 (S), V. cardui 1 (S), Coenonympha tullia (ochracea) 18 (P), Neominois ridingsii 4 (P), Pyrgus communis 5 (S), Amblyscirtes oslari 2 (C), A. simius 18 (P), Hesperia pahaska 20 (C), H. uncas 2 (S), Oarisma garita 80 (S). Total 34 species, about 354 individuals. Field notes: Several of the above were new county records for Weld Co., CO and Laramie Co., WY. The E. enoptes are the first found to the east of the Front Range. A striking suffused aberrant C. gorgone was collected.

Cal-wood Outdoor Learning Center, CO. 40°09'N, 105°22'W, center Calvert Lodge near Jamestown, Boulder County. See 1984 report for included habitat and features, elevation 2365 to 2440 m. 29 July 1985; 1000 to 1300 hrs. Intermittent overcast during count period; 23 to 24°C; wind W 0 to 6 km/hr. Eight observers in one to two parties. Total party hours 3.5 (3 on foot, 0.5 by car); total party miles 3.5 (3 on foot, 0.5 by car). Observers: A. Chu, J. Chu (964 Ravenwood Road, Boulder, CO 80303), R. Chu, K. Moulder, D. Roush, K. Roush, S. Pattee, J. Walburn. Conservation status of area surveyed: Uses of land: Education, controlled hiking. Uniqueness of habitats: Has not been grazed since 1965. Area has large meadows. Imminent threats to habitats: Newly discovered spruce budworm population causing serious damage to fir trees. Changes noticed since last year: Removal of budworm-killed trees looks like clear-cutting on one acre. Efforts are being made to provide better fire breaks. Fewer flowers in bloom than in 1984. It was much drier this past spring and continues to look dry. There were only three appreciable snowfalls this past winter. Papilio eurymedon 2 (N), P. rutulus 2 (N), P. zelicaon 1 (N), Parnassius phoebus 15 (S), Colias alexandra 9 (N), C. eurytheme 21 (N), C. philodice 1 (S), Strymon melinus 3 (S), Euphilotes enoptes 2 (N), Lycaeides melissa 23 (N), Plebejus acmon 8 (N), P. saepiolus 2 (N), Euphydryas anicia 11 (N), Euptoieta claudia 1 (S), Nymphalis milberti 2 (S), Phyciodes pascoensis (as tharos) 1 (N), Polygonia sp. 1 (S), Vanessa cardui 1 (S), Coenonympha tullia 12 (S), Erebia epipsodea 3 (S), Erynnis sp. (as icelus-too late, ed.) 14 (S), Hesperia nevada 1 (S), Oarisma garita 6 (S). Total 23 species, about 143 individuals. Field notes: Papilio zelicaon nectaring on lemon pucooon. Also in flower Gaillardia and Helianthus.

Fort Collins, CO. 40°34'N, 105°5'W, center just SW of Shields and Mulberry Sts. in downtown Ft. Collins. See 1984 report for included areas and habitats. 23 June 1985, 0730 to 1630 hrs; clear in AM, cloudy in PM; 17-33°C; wind variable NW 0-10 km/hr. Six observers in four parties. Total party hours 20.5 (18.5 on foot, 2 by car); total party miles 35 (15 on foot, 20 by car). Observers: S. Ellis, E. Jones, D. & M. Leatherman, P. Opler (5100 Greenview Ct., Ft. Collins, CO 80525), R. Stanford. Conservation status: Uses of land: the majority of areas counted are in park or preserve status, but also included are some agriculture--alfalfa, field corn, grazing, and much urban and suburban. Only small amount of urban area counted. Boloria aeolene colony on land near Timnath not in preserve status, but not seen on count day. Euphyes bimacula colony behind Opler yard on state list but not in preserve. Satyrodes fumosus along Poudre River (see below) in city parkland; Imminent threats to habitats: weed invasion of riparian habitat threatens both S. fumosus and E. bimacula colonies. Potential dams on Poudre River above Ft. Collins could lower water level in Ft. Collins and threaten S. fumosus colonies. Changes noticed since last year: increased weed control efforts along Poudre River for Canada thistle and leafy spurge. Papilio eurymedon 5 (S), P. indra 1 (S), P. multicaudatus 44 (C), P. rutulus 7 (N), Colias eurytheme 4 (S), C. philodice 86 (N), Pieris rapae 99 (N), Pontia protodice 19 (P=photo), Lycaena heteronea 9 (C), L. hyllus 4 (N), L. rubidus 1 (S), L. xanthoides 5 (S), Callophrys apama 4 (C), Mitoura siva 10 (S), Satyrium behrii 143 (C), S. californica 150 (C), S. liparops 11 (C), S. titus 21 (C), Strymon melinus 8 (C), Celastrina ladon 4 (C), Euphilotes enoptes 8 (C), Everes amyntula 4 (C), Glaucopsyche piasus 2 (N), Lycaeides melissa 13 (N), Plebejus icarioides 38 (C), Asterocampa celtis 3 (S), Charidryas palla 3 (S), Euptoieta claudia 1 (S), Limenitis archippus 3 (S), L. weidemeyerii 41 (S), Nymphalis antiopa 7 (S), N. milberti 1 (S), Phyciodes campestris 12 (C), P. pallida 26 (P), P. pascoensis 26 (C), Polygonia satyrus 1 (S), P. zephyrus 13 (N), Speyeria aphrodite 614 (N), S. atlantis 2 (C), S. callippe 1 (S), S. coronis 22 (C), S. edwardsii 9 (N), Vanessa atalanta 13 (S), V. cardui 3 (S), V. virginiana 2 (S), Cercyonis oetus 3 (S), C. pegala 5 (S), Coenonympha tullia (ochracea) 24 (S), Oeneis chryxus 1 (C), Satyrodes fumosus 2 (S)-first record in Colorado since 1951!, Danaus plexippus 7 (S), Epargyreus clarus 24 (S), Pholisora catullus 1 (S), Pyrgus communis 10 (S), Amblyscirtes oslari 1 (C), Atrytone arogos 33 (C), A. delaware 3 (C), Euphyes bimacula 1 (C), E. virens 524 (C), Hesperia nevada 1 (C), H. pahaska 13 (C), H. viridis 1 (S), Oarisma garita 105 (C), Piruna pirus 76 (C), Poanes taxiles 41 (C), Polites coras 3 (N), P. mystic 171 (C), P. origenes 9 (C), P. sabuleti 3 (C), P. themistocles 15 (N). Total 70 species, about 2580 individuals. Field notes: Advanced season this year, several species missed that were found last year, e.g. Colias alexandra and Plebejus saepiolus - now too dry. Additional party this year enabled high species and individuals count. Papilio polyxenes seen count week but not count day. Most significant find by far was discovery by Scott Ellis of Satyrodes fumosus colony. Subsequent to count day 3 other small

colonies were found near Poudre River. This species is on U.S. Fish and Wildlife Notice of Review for potential endangered species candidates. One Oeneis chryxus found on off-year for species. Principal nectar sources on count day were Canada thistle, dogbane, wild geranium, sulphur flower, alfalfa and Monarda.

Gilpin County, lower circle, CO. 39°50'N, 105°20'W, center near Mt. Tom, 1770 to 3200 m; see 1975 report for areas and habitat included. 7 July 1985; 0745 to 1700 hr; AM mostly clear, PM mostly cloudy; 16-36°C (hottest count in 11 years); wind S 0 to 20 km/hr. Eleven observers in five to six parties. Total party hours 36 (28 on foot, 8 by car); total party miles 143 (23 on foot, 120 by car). Observers: D. Barlow, M. Basham, D. Currutt, J. Haemer, P. & S. Opler, J. Scott, C. Slater, R. Stanford (720 Fairfax St., Denver, CO 80220). Conservation status, Uniqueness of habitats, and Imminent threats: as described previously; Changes noticed since last year: Much of Clear Creek Canyon is now posted "Keep Out" because of public overuse and misuse. Attempts will be made to obtain permission to continue studies in these areas. Papilio eurymedon 5, P. multicaudatus 16, P. polyxenes 3 (S), P. rutulus 13, P. zelicaon 1 (S), Parnassius phoebus 145, Colias alexandra 102, C. eurytheme 30, C. philodice 15, Pieris rapae 47 (S), Pontia occidentalis 1 (N), P. protodice 60, Apodemia nais 40, Lycaena dorcas 1, L. heteronea 194, L. rubidus 16, L. xanthoides 3, Callophrys apama 11, Incisalia eryphon 4, Mitoura siva 16, M. spinetorum 5, Satyrium acadicum 1 (S), S. behrii 47, S. calanus 1, S. californicum 7, S. liparops 16, S. saepium 6, S. titus 24, Strymon melinus 18, Agrilades glandon 26, Celastrina ladon 1, Euphilotes enoptes 4, Everes amyntula 2, Glaucopsyche lygdamus 2 (N), Lycaeides melissa 3 (N), Plebejus acmon 10, P. icarioides 25, P. saepiolus 32, Asterocampa celtis 7, Charidryas gorgone 1 (N), C. nycteis 40, C. palla 21, Euphydryas anicia 5, Euptoieta claudia 24, Limenitis weidemeyerii 39, Nymphalis antiopa 17 (S), N. californica 2, N. milberti 4, Phyciodes campestris 5, P. pascoensis 22, Poladryas arachne 5, Polygonia satyrus 5, P. zephyrus 14, Speyeria aphrodite 59, S. atlantis 40, S. callippe 46 (N), S. coronis 2 (S), S. edwardsii 8, S. mormonia 4, Vanessa atalanta 8 (S), V. cardui 8, Danaus plexippus 8 (S), Cercyonis oetus 79, C. pegala 174, Coenonympha tullia (ochracea) 98, Cyllopsis pertepida 17, Erebia epiphodea 9, Oeneis uhleri 1, Epargyreus clarus 10, Erynnis persius 3, Pholisora catullus 1 (S), Pyrgus communis 2 (S), Amblyscirtes aenus 4, Atrytone arogos 89, A. delaware 4, Euphyes vestris 129, Hesperia nevada 3, H. ottoe 8, H. pahaska 3, H. uncaa 1 (S), H. viridis 12, Oarisma garita 17, Ochlodes snowi 7, Piruna pirus 37, Polites taxiles 69, P. mystic 7, P. origenes 23, P. themistocles 5. Total 88 species, about 2159 individuals. All IDs (C) except as noted. Larvae seen: Charidryas gorgone 58 on Helianthus sp., Nymphalis milberti 300 on Urtica. Total 2 species, about 358 individuals. Field notes: The season was advanced, after only a moderate snowpack and several weeks of dry, hot weather. Most spring species were gone, there were no exotics seen. The Opler and Stanford parties each

observed 69 species, not a new record. No new species for the count were found, but there was a new county record for Gilpin Co. (*S. liparops*, RES) and a confirmatory one (*P. mystic*, RES). The total species in eleven years of observing in the Lower Circle remains at 123, and for both circles combined remains at 141.

Gilpin County, upper circle, CO. 39°55'N, 105°35'W, center 3 km NNE of Apex, 2380 to 4045 m; habitat coverage (see 1980 report). 7 July 1985; 0800 to 1700 hr. AM clear, PM mostly cloudy; 16-30°C; wind variable 0 to 15 km/hr. Seven observers in four parties. Total party hours 8 (6 on foot, 2 by car); total party miles 50 (10 on foot, 40 by car). Observers: D. Barlow, M. Basham, P. & S. Opler, J. Scott, R. Stanford (720 Fairfax St., Denver CO 80220), L. Stanford. Conservation status, Uses of land, Uniqueness of habitats, and Imminent threats to habitats as described previously. Changes noticed since last year: The Toll Ranch, although leased to a hunting club, remains a fabulous study area. We are grateful to Dr. Henry Toll for permitting us to continue our fieldwork there. *Papilio eurymedon* 3, *P. rutulus* 5, *P. zelicaon* 1 (S), *Parnassius phoebus* 145, *Colias alexandra* 64, *C. eurytheme* 5 (S), *C. philodice* 1 (S), *C. gigantea* *scudderii* 4, *Euchloe ausonides* 6 (N), *Pieris napi* 20, *P. rapae* 1, *Pontia occidentalis* 1 (N), *Lycaena dorcus* 26, *L. editha* 1, *L. heteronea* 9, *L. nivalis* 5, *L. rubidus* 8, *Callophrys apama* 3 (S), *Incisalia eryphon* 4, *Agriades glandon* 6, *Celastrina ladon* 1, *Plebejus acmon* 8, *P. icarioides* 5, *P. saepiolus* 79, *Boloria selene* 1, *Charidryas nycteis* 40, *C. palla* 21, *Euptoieta claudia* 1 (S), *Limenitis weidemeyerii* 29, *Nymphalis antiopa* 4 (S), *N. californica* 2, *N. milberti* 3, *Phyciodes campestris* 1, *P. pascoensis* 8, *Polygonia zephyrus* 9, *Speyeria atlantis* 15, *S. edwardsii* 3, *S. mormonia* 22, *S. zerene* 1, *Vanessa cardui* 2, *Cercyonis oetus* 24, *Coenonympha tullia* (*ochracea*) 78, *Cyllopsis pertepida* 1, *Erebia epipsodea* 29, *Erynnis persius* 3, *Hesperia nevada* 2, *Polites mystic* 1. Total 47 species, about 711 individuals. Larvae seen: *Nymphalis milberti* 300 on Urtica. Total 1 species, about 300 individuals. All IDs (C) except as noted. Field notes: We concentrated mainly on the Lower Circle this year. Our 47 species this year compares with 60 species (1500 individuals) in 1978 and 55 species (611 individuals) in 1979. Total species for the two circles in 1985 is 95, well below our record of 107 in 1981. New species for the Upper Circle in 1985 were *C. pertepida* and *P. mystic*.

Highline Canal, CO. 39°45'N, 104°40'W, center the Hollow Tree (stump), Aurora at Del Mar Park. Principal areas counted were Sand Creek off Laredo Drive and Highline Canal adjacent to Fairmount Cemetery. See 1979 count report for included habitat. 14 July 1985; 0900-1430 hrs; clear in AM, partly cloudy in PM; 21-33°C; wind slight variable. Five observers in one to two parties. Total party hours 6.2 (5.8 on foot, 0.4 by car); total party miles 26 (6 on foot, 20 by car). Observers: A. & J. Chu, M. Foley, P. Opler (5100 Greenview Ct., Ft. Collins, CO 80525),

R. Wahl, J. Walburn. Conservation status of area surveyed: Uses of land: Highline Canal has maintained bike-foot path along it, but other areas not in conservation use. Almost all in waste field or urban; Imminent threats to habitats: The Sand Creek nr Laredo Drive is now by far the best area; it is potentially threatened by further suburban developments and destruction of riparian vegetation along Sand Creek; Changes since last year: Riparian vegetation at Chambers and Alameda, previously good for butterflies has been destroyed and the stream course altered badly--very few butterflies found there. *Papilio multicaudatus* 1 (S), *P. polyxenes* 4 (N), *P. rutulus* 6 (S), *Colias eurytheme* 44 (N), *C. philodice* 73 (N), *Pieris rapae* 257 (S), *Pontia protodice* 38 (S), *Lycaena rubidus* 51 (N), *L. xanthoides* 26 (N), *Satyrium acadicum* 2 (N), *Strymon melinus* 8 (N), *Lycaeides melissa* 1 (N), *Asterocampa celtis* 1 (N), *Charidryas gorgone* 6 (N), *Euptoieta claudia* 5 (N), *Limenitis archippus* 2 (S), *L. weidemeyerii* 4 (S), *Nymphalis antiopa* 4 (S), *N. milberti* 1 (S), *Phyciodes campestris* 1 (N), *P. tharos* 2 (N), *Speyeria aphrodite* 28 (N), *S. cybele* 1 (N), *Vanessa atalanta* 4 (S), *V. cardui* 25 (N), *V. virginiana* 1 (N), *Cercyonis pegala* 295 (N), *Danaus plexippus* 9 (S), *Epargyreus clarus* 50 (S), *Pholisora catullus* 1 (N), *Pyrgus communis* 9 (N), *Atrytone delaurea* 2 (N), *Piruna pirus* 6 (N), *Poanes taxiles* 8 (N), *Polites origenes* 1 (N), Total 35 species, about 977 individuals. Larvae seen: *Danaus plexippus* 1 on Asclepias. Total: 1 species, 1 individual. Field notes: The season was extremely advanced and several butterflies seen last year were past their prime or absent. Nectar sources were milkweed, snowberry, alfalfa, and Canada thistle, the most important, which was mainly past peak. *Speyeria cybele* was new county record for Arapahoe County.

#### ZONE IV: PLAINS (Nebraska)

Fontenelle Forest Nature Center, NE. 41°10'N, 95°53'W, center 3.5 km N - 1.5 km W Hwy 370 bridge on Missouri River, see 1984 report for included areas and habitats. Elev: 296 to 366 m. 28 July 1985; 0930-1430 hrs.; mostly clear in AM, mostly cloudy in PM; 20-29°C; wind variable, 0 to 11 km/hr. Ten observers in one to two parties. Total party hours 7.5 (all on foot), total party miles 6.5 (all on foot). Observers: T. Bray, L. Currier, P. Fryer, M. Harm, J. Hering, J. Pyrzynski, A. Saunders (Fontenelle Forest Nature Center, 1111 Bellevue Blvd., North Bellevue, NE 68005), K. Staroska, A. Tarsikes, J. Weber. Conservation status of area surveyed: Uses of land: The area is owned and fully protected by the Fontenelle Forest Assoc.-- a non-profit corporation. It is open to hiking on trails only. Area is closed to camping, horseback riding, pets, off-road vehicles and cross country skiing. Uniqueness of habitats: one of the last remaining fully protected and unmanaged deciduous forests in eastern Nebraska. Imminent threats to habitats: None. Changes noticed since last year: None. *Papilio cresphontes* 8, *P. glaucus* 12, *P. polyxenes* 2, *Colias eurytheme* 38, *C. philodice* 6, *Pieris rapae* 10, *Celastrina ladon* 21, *Everes comyntas* 2, *Feniseca tarquinius* 1, *Libytheana*

bachmani 2, Asterocampa celtis 20, A. clyton 10, Limenitis arthemis astyanax 15, Polygonia comma 11, P. interrogationis 2, Speyeria cybele 12, Vanessa atalanta 9, Enodia anthona 1, Danaus plexippus 2, Epargyreus clarus 7, Pyrgus communis 6, Staphylus hayhurstii 5, Ancyloxypha numitor 5. All species identified by sight. Total 23 species, about 210 individuals. Field notes: Earlier in summer Megisto cymela, Nymphalis antiopa, Vanessa atalanta, and Charidryas nycteis had been extremely abundant. Latter two perhaps occurring in record numbers. Species compared to last year extremely scarce. Factors responsible could have been cool, moist weather.

Rowe Sanctuary, NE. 98°52'N, 40°37'W, see 1984 report for description of included areas and habitats. 4 July 1985; 0900 to 1130 hrs.; clear; 21-28°C; wind N, 0-16 km/hr. Five observers in one party. Total party hours 2.5 (2.0 on foot, 0.5 by car); total party miles 3 (2.5 on foot, 0.5 by car). Observers: N. Dankert, A. & J. Heckman, C. Johnson, H. Nagel (Route 3, Kearney, NE 68847). Conservation status of area surveyed: Land is an Audubon Bird Sanctuary. Colias eurytheme 112 (N), C. philodice 2 (N), Pontia protodice 1 (N), Charidryas gorgone 12 (N), C. nycteis 1 (N), Euptoieta claudia 2 (N), Phyciodes tharos 4 (N), Speyeria idalia 79 (N), Vanessa atalanta 1 (N), Cercyonis pegala 38 (N), Megisto cymela 4 (N), Danaus plexippus 1 (S), Pyrgus communis 13 (N), Atrytone delaurea 4 (N), Polites themistocles 4 (N). Total 15 species, about 278 individuals. Field notes: The Regal fritillary recorded every year the count has been held; this species is on the federal list of invertebrates under review for endangered species protection.

Sioux County Canyons, NE. 42°47'N, 103°56'W, center Gilbert Baker Wildlife Management Area Campground, see 1984 report for included areas and habitats; Elev.: 1323 to 1482 m. 21 July 1985; 0855-1615 hrs.; clear in AM, mostly clear in PM; 28-33°C; wind NNE, 2 to 18 km/hr. Two observers in one to two parties. Total party hours 11 (8 on foot, 3 by car); total party miles 33 (7 on foot, 26 by car). Observers: D. Rosche, R. Rosche (501 Shelton Street, Chadron, NE 69337). Changes noticed since last year: The worst drought conditions in about 50 or more years. Everything "burned out" except on immediate edges of streams; few nectar sources. Colias alexandra 3 (C), C. eurytheme 60 (C), C. philodice 171 (C), Pieris rapae 14 (C), Pontia protodice 1 (N), Strymon melinus 28 (C), Lycaeides melissa 13 (C), Asterocampa celtis 1 (S), Boloria selene 10 (C), Euptoieta claudia 6 (N), Nymphalis antiopa 2 (S), Phyciodes tharos (Type A or B? - Ed.) 2 (C), Speyeria aphrodite 30 (N), S. coronis 2 (N), S. edwardsii 27 (N), Vanessa atalanta 1 (S), V. cardui 3 (N), Cercyonis pegala 83 (C), Megisto cymela 2 (C), Satyrodes eurydice 3 (C), Epargyreus clarus 1 (S), Erynnis afranius 125 (C), Pholisora catullus 37 (N), Pyrgus communis 12 (C), Euphyes vestris 9 (C), Hesperia uncas 3 (C), Poanes taxiles 1 (C), Polites origenes 1 (C). Total 28 species, about 651 individuals. Field notes: Second year count.

1984 was a very late, wet season; 1985 a very early (2-3 weeks), dry season. The number of individuals counted in 1985 was only about 1/3 that of 1984. Two wet meadow butterflies, Boloria selene and Satyrodes eurydice, as well as Vanessa cardui, were new for the count, making a total of 53 species for the two years. Erynnis afranius was exceptionally abundant.

#### ZONE V: MIDWEST (Illinois, Michigan, Ohio)

McGraw Wildlife Foundation, IL. 42°04'N, 88°08'W, see earlier reports for description of area. 9 July 1985; 0845 to 1630 hrs.; AM partly cloudy, PM mostly clear; 30-35°C; wind SW 3 to 5 km/hr. Six observers in one to three parties. Total party hours 9.0 (2.5 on foot, 6.5 by car); total party miles 24 (2 on foot, 22 by car). Observers: G. Burger (1766 Country Knolls Lane, Elgin, IL 60120), J. Burger, G. Milcik, R. Montgomery, B. Semel, K. Van Horn. Conservation status of area surveyed: Uses of land: Some alfalfa hay acreage (reflected in increased Colias numbers); Imminent threats to habitats: None; Changes noticed since last year: Native fen area habitat improved via management efforts, as regards vegetation (but see field notes re butterflies). Papilio glaucus 2 (S), P. polyxenes 9 (S), Colias eurytheme 48 (S), C. philodice 114 (S), Pieris rapae 141 (S), Satyrium acadicum 2 (N), S. calanus 1 (N), S. titus 6 (C), Celastrina ladon 2 (N), Everes comyntas 1 (S), Asterocampa celtis 1 (S), Charidryas nycteis 1 (N), Euphydryas phaeton 4 (S), Limenitis archippus 2 (S), Nymphalis antiopa 2 (S), Polygonia comma 1 (N), P. interrogationis 2 (S), Speyeria cybele 8 (S), Vanessa atalanta 16 (S), Enodia anthona (as portlandia) 13 (N), Megisto cymela 13 (S), Satyrodes eurydice 6 (N), Danaus plexippus 19 (S), Epargyreus clarus 3 (S), Pholisora catullus 1 (C), Euphyes conspicua 1 (C), Poanes massasoit 11 (C), Pompeius verna 10 (C), Thymelicus lineola 136 (S). Total 29 species, about 576 individuals. Field notes: Papilio glaucus highest in numbers seen in May and early June in 20 years on this site. P. polyxenes also more common than usual in July. Vanessa atalanta very common, May-June, numbers lower in July. Euphydryas phaeton and Satyrodes eurydice, 2 fairly common species at our fen site in previous years were scarce this count. Count dates were similar, as is phenology. Could overwintering have been impacted by controlled burns in late winter carried out to manage vegetation?

Greater Muskegon, MI. 43°13'N, 86°15'W, see 1984 report for description of area and habitats, wastewater treatment area added in 1985. Elev.: 200 m. 17 July 1985; 1000 to 1400 hrs; mostly clear in AM, clear in PM; 15-25°C.; wind SW to 37 km/hr. Ten observers in one party. Total party hours 4 (3.6 on foot, 0.4 by car); total party miles 12 (2 on foot, 10 by car). Observers: A. Boulton, M. Elliott (1530 Nelson St., Muskegon, MI 49491), E. Fortier, C. & M. Gasaway, E. Hassler, C. Kerstina, L. Merrill, M. Ochs, E. Rasmussen. Imminent threats to habitats: Urbanization - parking lots, street widening in several areas. Papilio glaucus 4 (S), P. polyxenes 4 (S), P.

troilus 3 (S), Colias eurytheme 8 (S), C. interior 4 (S), C. philodice 7 (S), Pieris rapae 1171 (S), Pontia protodice 3 (S), Lycaena phlaeas 52 (N), Incisalia augustus 2 (S), (too late?-ed.), Lycaeides melissa 48 (N), Boloria bellona 5 (N), Junonia coenia 2 (S), Limenitis archippus 10 (S), L. arthemis astyanax 4 (S), Nymphalis antiopa 1 (S), N. vau-album 2 (S), Phyciodes tharos 3 (S), Speyeria cybele 1 (N), Vanessa atalanta 5 (S), V. cardui 2 (S), V. virginianensis 2 (S), L. baltimore 1 (N), Cercyonis pegala 1 (S), Enodia anthonia 1 (N), Megisto cymela 1 (S), Danaus plexippus 48 (S), Erynnis sp. 3 (S). Total 28 species, about 1398 individuals. Field notes: More than a thousand Pieris rapae counted at wastewater site where crops have been planted the last few years. Monarchs and Polygonia scarce this year.

Cleveland Heights-Holden Arboretum, OH. 41°30'N, ca. 81°W, see 1980 report for detailed description of area covered. 17 July 1985; 1000 to 1230 hr; 1400 to 1600 hrs; clear all day; 25-27°C; no wind. One observer in one party. Total party hours 4.5 (all on foot); total party miles 4 (all on foot). Observer: J. Clemens (2258 Lamberton Rd., Cleveland Heights, OH 44118). Papilio glaucus 1 (S), P. polyxenes 2 (S), Colias eurytheme 37 (N), C. philodice 16 (N), Pieris rapae 25 (N), Lycaena phlaeas 48 (N), Boloria bellona 1 (S), Limenitis arthemis astyanax 2 (S), Nymphalis antiopa 1 (S), Phyciodes tharos 26 (N), Polygonia comma 1 (N), Speyeria cybele 28 (N), Vanessa virginianensis 1 (S), Danaus plexippus 9 (N), Cercyonis pegala 31 (N), Epargyreus clarus 8 (N), Poanes hobomok 11 (N), Total 17 species, about 258 individuals. Field notes: Count followed three very dry weeks; weather was hotter earlier in 1985. On count day no viceroys, hairstreaks, blues or red admirals (seen earlier). L. phlaeas and P. tharos common on count day due to advanced season. Thymelicus lineola flight over two weeks ago when 100 could be counted in an hour.

ZONE VI: SOUTHEAST  
(Arkansas, Louisiana, Florida)

Washington Co., AR. 35°90'N, 94°10'W, center NW part of Fayetteville. Elevation 375-380 m. Habitat coverage: oak-hickory woods, "clover" - hay field; abandoned field becoming quite overgrown with young trees; river bed; roadways unpaved with canebrake alongside. 24 July 1985: 1240-1645 hrs; partly cloudy in PM; 32-35°C; wind 5-10 km/hr. One observer. Total party hours 4 (3.5 on foot, 0.5 by car); total party miles 6 (4 on foot, 2 by car). Observer: L. Paulissen (1609 North Maxwell Dr., Fayetteville, AR 72703). Conservation status: same as last year's report. One area just adjacent to the reported area and along the river was cleared of underbrush; trees were left standing. Battus philenor 4, Papilio glaucus 11, P. troilus 6, Colias eurytheme 2, Eurema lisa 6, E. nicippe 1, Nathalis iole 27, Pieris rapae 4, Feniseca tarquinius 1, Celastrina ladon 1, Everes comyntas 13, Strymon melinus 2, Libytheana bachmanii 3, Asterocampa celtis 3, Chlosyne nycteis 12, Euptoieta claudia 6, Junonia coenia 3, Limenitis archippus 7, L. astyanax 6, Phyciodes tharos 16, Polygonia comma 1, P.

interrogationis 3, Speyeria cybele 1, Vanessa atalanta 1, Enodia portlandia 4, Megisto cymela 2, Atalopedes campestris 13, Atrytone logan 1, Epargyreus clarus 16, Euphyes vestris 1, Hylephila phyleus 3, Pholisora catullus 5, Poanes zabulon 1, Polites themistocles 2. Total 34 spp., 188 individuals. All ID by sight. Field notes: The species C. ladon and F. tarquinius were spotted in a wooded area of mostly ash trees.

Lower East Pearl River, LA-MS. 30°21'N, 89°40'W, center jct Old U.S. 90 & E. Pearl River. Elevation 5-30 m. Habitat coverage previously described. 7 July 1985; 1100-1810 hrs; mostly cloudy in AM, mostly cloudy with intermittent light rain in PM; 25.6-27.8°C. Three observers. Total party hours 7.2 (1 on foot, 6.2 by car); total party miles 73 (1 on foot, 72 by car). Observers: F. Fischer, Jr. (2720 Octavia St., New Orleans, LA 70115), A. Welden, F. Welden. Changes noticed since last year: none. Papilio glaucus 9 (C), P. palamedes 1 (S), P. philemon 2 (S), P. polyxenes 10 (S), P. troilus 7 (S), Ascia monuste 1 (S), Eurema nicippe 7 (C), Libytheana bachmanii 1 (S), Euptoieta claudia 4 (S), Junonia coenia 4 (S), Limenitis archippus 13 (C), L. arthemis 9 (S), Phyciodes tharos 47 (C), Vanessa atalanta 1 (S), Cercyonis pegala 1 (S), Hermeuptychia hermes 3 (S), Euphyes vestris 2 (S), Copaeodes minima 2 (S), Hylephila phyleus 9 (S), Pyrgus communis 1 (S). Total 20 spp., 134 individuals. Field notes: Early spring followed by unusually cool late spring and below normal rainfall, produced many blooming wild flowers; so our count was up in volume. As the day was mostly cloudy we did not have the busy activity and had to flush many butterflies into flight. Our count was a very good one even though we did not have more than 10 minutes of direct sunlight coming very late in the day.

Calvert Co., MD. 35°37'N, 76°39'W. See 1976 report for further description of habitat and area. 23 July 1985; 0916-1708 hrs; clear in AM, clear in PM; 22-29°C; wind NE 5-15 km/hr. Two observers in one party. Total party hours 7.5 (5.5 on foot, 2 by car); total party miles 58 (7 on foot, 51 by car). Observers: J. Fales (2809 Ridge Rd., Huntington, MD 20639), G. Parker. Imminent threats to habitats: not imminent but commercial and residential development is continual in this developing rural area. Eurytides marcellus 6 (C), Papilio glaucus 4 (S), P. polyxenes 1 (S), P. troilus 3 (C), Colias eurytheme 11 (C), C. philodice 5 (S), Pieris rapae 32 (S), Celastrina ladon 1 (C), Everes comyntas 9 (C), Lycaena phlaeas 1 (C), Mitoura gryneus 8 (C), Strymon melinus 6 (S), Euptoieta claudia 3 (C), Junonia coenia 3 (S), Phyciodes tharos 7 (S), Polygonia interrogationis 2 (S), Speyeria cybele 2 (S), Vanessa atalanta 3 (C), V. virginianensis 8 (C), Danaus plexippus 10 (S), Atalopedes campestris 102 (S), Atrytone logan 1 (C), Epargyreus clarus 28 (S), Erynnis horatius 3 (C), Poanes viator 7 (C), Polites coras 1 (S), Staphylus hayhurstii 1 (C). Total 27 spp., 268 individuals. Field notes: There was only 32mm of precipitation in the area since the first of the month, and with daily high temperatures averaging 31.6°C over the same

period, drought conditions were prevalent on the day of the count. Much growth in the meadows, orchards and roadside areas had become dried. Some scarce nectar sources present were smart weed, black-eyed susan, Indian hemp, Queen Anne's lace, milkweed, Alsike clover and red clover. Again this year many meadows and roadsides had been recently mowed. Like in recent years, the area west of the Patuxent River was not surveyed. Atrytone logan occurred for the first time, bringing to 55 the number of species recorded here after 10 successive annual counts. The total individuals were by far the lowest yet recorded here (268 vs the 9-year average of 936).

#### ZONE VII: NORTHEAST

(Connecticut, New Jersey, New York, Pennsylvania, Ontario, Quebec)

Delaware Co., PA. 39°56'N, 75°21'W, see 1984 report for detailed descriptions of area covered. 6 July 1985; 1000 to 1600 hr, AM hazy and partly cloudy, PM mostly clear; 24-32°C; wind southeast 2 to 5 km/hr. Five observers in one party. Total party hours 6 (5.5 on foot, 0.5 by car); total party miles 10 (5 on foot, 5 by car). Observers: J. McGrath (304 Derwyn Road, Lansdowne, PA 19050), C. Bergson, F. Haas, R. Bodine, M. L. Schmidt. Changes noticed since last year: continued loss of natural areas due to highway and industrial construction. Papilio glaucus 1, P. polyxenes 1, Colias eurytheme 9, C. philodice 1, Pieris rapae 60, Strymon melinus 2, Celastrina ladon 1, Everes comyntas 1, Boloria bellona 3, Limenitis archippus 5, Phyciodes tharos 1, Speyeria cybele 6, Vanessa atalanta 5, Megisto cymela 1, Satyrodes eurydice 5, Coenonympha inornata 3, Epargyreus clarus 5, Thorybes pylades 1, Ancyloxypha numitor, 3 (method of identification not specified). Total 19 species, about 124 individuals. Field notes: the extremely hot and dry weather resulted in low counts for certain species. No Danaus plexippus were seen, and Papilio were in low numbers. The ratio of Colias philodice to C. eurytheme was unusually low. Early plant maturation and bloom and nectar loss appeared attributable to the heat wave, gardens with a diversity of plant species were thus viable secondary nectar sources.

Lower Bucks Co., PA. 42°02'N, 75°00'W, see earlier reports for detailed description of area covered. 17 July 1985; 1030 to 1530 hr, AM clear, PM clear; 27-29°C; wind northwest 15 to 25 km/hr. Five observers in one party. Total party hours 5 (4 on foot, 1 by car); no estimate made of party miles. Observers: W. Epstein, R. Maly, F. Naas (9 Harding Avenue, Feasterville, PA 19047), B. Rochelle, J. Scillia. Papilio glaucus 10 (N), P. polyxenes 6 (S), Colias philodice 18 (N), Pieris rapae 39 (S), Everes comyntas 2 (N), Glaucopsyche lygdamus 2 (N), Boloria bellona 4 (N), Limenitis arthemis (astyanax) 2 (N), Phyciodes tharos 8 (N), Speyeria aphrodite 10 (N), Vanessa atalanta 2 (N), V. cardui 2 (N), Danaus plexippus 8 (N), Megisto cymela 2 (N), Epargyreus clarus 2 (N), Erynnis baptisiae 4 (N), Pholisora catullus 10 (N). Total 17 species, about 130

individuals. Field notes: Hot dry spell in early spring appeared likely cause of delayed and dwarfed foodplants.

Galloway Township, NJ. 39°29'N, 74°35.5'W; Elev.: 0-22 m, see 1981 report for details of area and habitat covered. 19 July 1985; 0930 to 1823 hr, mostly clear all day; 20-30°C; wind variable 8-25 km/hr. One observer in one party. Total party hours 7.5 (6 on foot, 1.5 by car), total party miles 41 (5 on foot, 36 by car). Observer: W. Cromartie (NAMS, Stockton State College, Pomona, NJ 08240). Changes noticed since last year: Some sites on Stockton campus were mowed in May. One portion of survey area may have been sprayed with Carbaryl in May to control gypsy moths. Papilio polyxenes 3 (S), Colias eurytheme 7 (S), Pieris rapae 36 (S), Lycaena phlaeas 2 (S), Mitoura gryneus 2 (S), Satyrium titus 1 (S), Phyciodes tharos 3 (N), Vanessa atalanta 1 (S), V. virginensis 4 (N), V. unid. 5 (S), Danaus plexippus 12 (S), Cercyonis pegala 2 (S), Satyrodes unid. 1 (S), Epargyreus clarus 2 (S), Erynnis baptisiae 1 (S), E. horatius 1 (S), E. unid. 9 (S), Wallengrenia egeremet 2 (S), Hesperiidae unid. 5 (S). Total 15 species, about 99 individuals. Field notes: Extremely dry conditions have reduced amount of herbaceous vegetation in most areas. Nectar sources seemed rarer than in previous counts, especially in upland habitats. Gypsy moth defoliation light in most areas visited.

Greenbrook Sanctuary, Tenafly, NJ. 40°54'N, 73°56'W, see 1984 report for detailed description of area covered. 20 July 1985; 1000 to 1500 hr, AM hazy, PM hazy; 27-30°C; wind calm. Six observers in one party. Total party hours 4 (all on foot); total party miles 2 (all on foot). Observers: S. Bonardi, B. Brenzel, H. Darrow, J. Hansen, J. Serrao (Box 155, Alpine, NJ 07620), S. Silverberg. Papilio glaucus 3 (S), P. troilus 2 (S), Colias eurytheme 1 (N), Pieris rapae 20 (S), Lycaena phlaeas 1 (S), Satyrium calanus 1 (N), Celastrina ladon 2 (N), Everes comyntas 2 (N), Phyciodes tharos 3 (S), Polygonia interrogationis 3 (S), Speyeria cybele 1 (N), Vanessa atalanta 10 (S), V. virginensis 1 (S), Danaus plexippus 21 (S), Cercyonis pegala 4 (S), Megisto cymela 6 (S), Epargyreus clarus 1 (S), Wallengrenia egeremet 3 (N). Total 17 species, about 64 individuals. Larvae seen: Epargyreus clarus 10 on Bush Clover, Vanessa atalanta 5 on False Nettle. Total 2 species, about 15 individuals. Field notes: very poor summer for butterflies of all species except monarchs.

Chautauqua, NY. 42°15'N, 79°07'W, see 1984 report for detailed description of area covered. 30 June 1985; 1100 to 1700 hr, AM mostly clear, PM partly cloudy; 21.5-27.5°C; wind S-SE 0 to 5 km/hr. Two observers in one party. Total party hours 6 (2 on foot, 4 by car); total party miles 32 (2 on foot, 30 by car). Observers: T. N. Taft (223 Seymour St., Fredonia, NY 14063), T. N. Taft Jr. Papilio glaucus 4 (S), Colias eurytheme 24 (S), Pieris rapae 257 (S), Boloria bellona 4 (S), Limenitis archippus 1 (S), L.

arthemis (astyanax) 1 (S), Nymphalis antiopa 12 (S), N. milberti 1 (S), Polygonia interrogationis 1 (S), Speyeria aphrodite 1 (S), S. atlantis 17 (N), S. cybele 3 (C), Vanessa atalanta 5 (S), V. virginianensis 9 (S), Danaus plexippus 7 (S), Erynnis icelus 1 (N), Poanes hobomok 1 (N), Thymelicus lineola 165 (S). Total 18 species, about 518 individuals.

Inwood Hill Park, NY. 40°46'N, 73°58'W, see previous reports for detailed description of area covered. 10 July 1985; 1000 to 1600 hr, AM clear, PM clear; 29-31°C; wind west 0 to 5 km/hr. Thirteen observers in one to two parties. Total party hours 9 (all on foot); total party miles 9 (all on foot). Observers: L. Besser, L. Devito, L. Dickerson, S. Elliott, A. Graef, L. Pohner (345 East 83rd, New York, NY 10028), M. Schwartz, R. Selton, E. Thompson, J. Trehy, R. Vance, P. Waddington, N. Wagerik. Changes noticed since last year: fires and overzealous mowing have damaged the habitat of the meadow fritillary in the Bronx. The species was never common. We have not seen it for three years, and hope our fears will prove unjustified. Papilio glaucus 13, P. polyxenes 2, P. troilus 1, Colias eurytheme 24, C. philodice 10, Pieris rapae 344, Harkenclenus titus 1, Satyrium calanus 10, S. lipparops 1, Strymon melinus 2, Celastrina ladon 4, Everes comyntas 2, Asterocampa clyton 4, Charidryas nycteis 8, Nymphalis antiopa 11, Phyciodes tharos 13, Polygonia interrogationis 7, Speyeria cybele 3, Vanessa atalanta 26, V. virginianensis 9, Danaus plexippus 1, Megisto cymela 40, Epargyreus clarus 31, Achalarus lyciades 4, Erynnis baptisiae 12, Pholisora catullus 6, Ancyloxypha numitor 8, Euphyes vestris 5, Poanes viator 1, Pompeius verna 13, Thymelicus lineola 7, Wallengrenia egeremet 3 (all IDs by sight). Total 32 species, about 629 individuals. Larvae seen: Danaus plexippus 1 on Asclepias sp. Total 1 species, 1 individual. Field notes: the wild indigo duskywing has exploited the crown vetch (Coronilla) plantings. In the gardens it frequents the vicinity of Baptisia australis, on roadsides the Coronilla.

Jamaica Bay Wildlife Refuge, NY. 40°37'N, 73°50'W, see 1984 report for detailed description of area covered. 28 July 1985; 0900 to 1800 hr, AM clear, PM clear; 21-27°C; wind NE 3 to 7 km/hr. Ten observers in one party. Total party hours 8 (all on foot); total party miles 3 (all on foot). Observers: B. Furnival, J. Glassberg, J. Ingraham, P. Post, D. Riepe (Jamaica Bay Wildlife Refuge, c/o Gateway NRA, Floyd Bennett Field, Brooklyn, NY 11234), R. Robbins, S. Saphir, M. Tansey, G. Tudor, M. Weinberger. Papilio glaucus 9, P. polyxenes 20, P. troilus 3, Colias eurytheme 61, C. philodice 2, Pieris rapae 165, Lycaena phlaeas 15, Strymon melinus 4, Celastrina ladon 54, Everes comyntas 19, Libytheana bachmanii 1, Nymphalis antiopa 5, Phyciodes tharos 3, Polygonia interrogationis 2, Vanessa atalanta 24, V. virginianensis 52, Danaus plexippus 55, Epargyreus clarus 4, Pholisora catullus 5, Ancyloxypha numitor 3, Poanes zabulon 2, P. viator 220 (all IDs by sight). Total 22 species, about 758 individuals. Larvae seen: Libytheana bachmanii 3 on Celtis occidentalis, Danaus

plexippus 1 on Asclepias syriaca. Total 2 species, about 4 individuals. Field notes: spring azure and broad-winged skipper (high numbers), checkered white and buckeye missed (normally present). Dominant flowers included white sweet clover, bouncing betts, blue vervain, purple loosestrife. Best area for richness was open south field.

Northern Westchester County, NY. 41°12'N, 73°41'W, see 1984 report for detailed description of area covered. 13 July 1985; 0900 to 1800 hr, AM partly cloudy, PM mostly clear; 22-29°C; wind southwest 8 to 10 km/hr. Ten observers in three parties. Total party hours 22.5 (19.5 on foot, 3 by car); total party miles 92 (17 on foot, 75 by car). Observers: H. Darrow, B. Furnival, J. Glassberg (39 Highland Avenue, Chappaqua, NY 10514), J. Ingraham, P. Post, D. Riepe, R. Ridgely, J. V. Scott, G. Tudor, M. Weinberger. Papilio glaucus 10 (S), P. polyxenes 10 (S), Colias eurytheme 96 (S), C. philodice 58 (S), Pieris rapae 383 (S), Lycaena phlaeas 65 (S), Harkenclenus titus 45 (S), Satyrium acadicum 10 (S), S. calanus 11 (S), S. caryaevorum 6 (C), S. edwardsii 16 (S), S. lipparops 4 (S), Celastrina ladon 2 (S), Everes comyntas 54 (S), Asterocampa clyton 1 (C), Boloria bellona 23 (S), Charidryas nycteis 1 (S), Euphydryas phaeton 14 (S), Limenitis archippus 4 (S), L. arthemis (astyanax) 1 (S), Nymphalis vau-album 1 (S), Phyciodes tharos 117 (S), Polygonia interrogationis 11 (S), Speyeria aphrodite 1 (C), S. cybele 131 (C), Vanessa atalanta 14 (S), V. virginianensis 12 (S), Danaus plexippus 21 (S), Cercyonis pegala 131 (S), Megisto cymela 30 (S), Satyrodes appalachia 1 (S), S. eurydice 1 (S), Epargyreus clarus 125 (S), Pholisora catullus 4 (S), Thorybes pylades 1 (S), Ancyloxypha numitor 3 (S), Atrytone logan 27 (S), Euphyes conspicua 8 (S), E. vestris 90 (S), Poanes massasoit 10 (S), Polites origenes 23 (S), Pompeius verna 36 (S), Thymelicus lineola 14 (S), Wallengrenia egeremet 149 (S). Total 44 species, about 1777 individuals. Corrections to 1984 count, add: Everes comyntas 14, Celastrina ladon 2.

Central Queens County, Long Island, NY. 40°42'N, 73°50'W, see 1984 count for detailed description of area covered. 4 July 1985; 0815 to 1615 hr, AM hazy, PM mostly clear; 24-30°C; wind SE 0 to 25 km/hr. One observer in one party. Total party hours 8 (all on foot); total party miles 6 (all on foot). Observers: Guy Tudor (111-14 76th Avenue, Apt. 107, Forest Hills, NY 11375). Papilio glaucus 1 (S), P. polyxenes 6 (S), Colias eurytheme 10 (S), C. philodice 2 (S), Pieris rapae 45+ (S), Lycaena phlaeas 65 (S), Harkenclenus titus 9 (S), Satyrium calanus 17 (S), S. lipparops 1 (S), Everes comyntas 2 (S), Nymphalis antiopa 5 (S), Phyciodes tharos 2 (S), Polygonia interrogationis 2 (S), Vanessa atalanta 5 (S), V. virginianensis 2 (S), Megisto cymela 60 (S), Epargyreus clarus 10 (S), Ancyloxypha numitor 11 (S), Atrytone logan 1 (S), Euphyes vestris 2 (N), Poanes viator 4 (S), Thymelicus lineola 3 (S), Wallengrenia egeremet 3 (N). Total 22 species, about 200 individuals. Larvae seen: Danaus plexippus 1 on common milkweed. Total 1 species, 1 individual. Field notes: swallowtails and question-

mark low, but hairstreaks best ever. Satyrium liparops and Attrytone logan newly recorded for the area.

Southern New Haven County, CT. 41°16'N, 72°55'W, see previous reports for detailed description of area covered. 30 June 1985; 1145 to 1645 hr, AM clear, PM clear; 18-26°C; wind NW 5 to 10 km/hr. Two observers in one party. Total party hours 5 (4 on foot, 1 by car); total party miles 33 (3 on foot, 30 by car). Observers: L. Gall (Entomology Division, Peabody Museum, Yale University, New Haven, CT 06511), D. Schweitzer. Changes noticed since last year: State park crews have been conducting further clear cutting and herbiciding along paths on West Rock, not a positive sign. The removal in 1983 of one of the largest Celtis groves seems to have already affected the Asterocampa celtis population(s), as we had predicted, since we saw none in 1984 and 1985 on the counts (the only times in our decade of counting here). An extensive but largely understory fire on the top of West Rock ridge during mid-May 1985 may prove beneficial to the xeric flora and fauna. Papilio glaucus 7 (S), Colias eurytheme 15 (S), C. philodice 3 (S), Pieris rapae 61 (S), Harkenclenus titus 3 (N), Mitoura gryneus 2 (S), Satyrium acadicum 2 (S), S. calanus 116 (N), S. edwardsii 43 (N), S. liparops 1 (N), Euristrymon ontario 1 (C), Strymon melinus 1 (C), Celastrina ladon 3 (S), Everes comyntas 1 (S), Charidryas nycteis 14 (N), Euphydryas phaeton 1 (N), Nymphalis antiopa 3 (S), Polygonia comma 1 (S), P. interrogationis 3 (S), Speyeria cybele 1 (S), Vanessa atalanta 3 (S), Satyrodes anthonae 1 (C), Achalarus lyciades 9 (S), Epargyreus clarus 23 (S), Ancylloxypha numitor 5 (S), Attrytone logan 1 (S), Poanes hobomok 3 (N), Polites origenes 2 (N), P. themistocles 2 (N), P. corus 1 (N), Pompeius verna 3 (N), Thymelicus lineola 49 (S), Wallengrenia egeremet 9 (N). Total 33 species, about 393 individuals. Field notes: What a miserable summer indeed for satyrids in New Haven County and vicinity, before, during, and after the count. Still no sign yet of Coenonympha's advance into our area, despite its being resident in neighboring states, and a singleton having been captured within the count confines previously (but not on the count). Oviposition by Polygonia comma on Ulmus, 1625 hr. Pairs noted in copulo: Pieris rapae (1602 hr), Satyrium calanus (1416 hr, on a territorial perch).

Kanata, Ontario, Canada. 45°21'N, 75°55'W, center 24 km W Ottawa, includes 6 km stretch of road on the west side of Connaught Rifle Range, National Defense. 70-75 m; habitat coverage of area surveyed: Open fields, oat, grains and pasture, a few copses. 23 July 1985; 1000 to 1530 hrs; clear all day; 15 to 23°C; wind WNW, 10 to 40 km/hr (decreasing during day). One observer in one party; Total party hours 5.5 (all on foot); total party miles 8 (all on foot). Observer: J. Holliday (198 Keyworth Ave., Ottawa, Ont. K1Y 0E9). Conservation status of area surveyed: Uses of land: National Defense Department owns land on NE side of road. Department does not allow hunting or trapping, should remain undeveloped

for some years. Abandoned fields with large numbers of milkweed patches and wild parsnip. Papilio polyxenes 1 (N), Colias eurytheme 1 (S), C. philodice 212 (S), Pieris rapae 135 (S), Celastrina ladon 3 (N), Boloria bellona 3 (S), Limenitis archippus 3 (S), L. arthemis 1 (S), Nymphalis antiopa 1 (S), Phyciodes pascoensis 7 (S), Polygonia interrogationis 6 (S), Vanessa virginiensis 3 (S), Cercyonis pegala 29 (S), Megisto cymela 1 (S), Danaus plexippus 69 (S), Erynnis lucilius 1 (C), Thymelicus lineola 3 (N), Euphydryas vestris 1 (C). Total 21 species, about 493 individuals. Field notes: This is a first year count. A perfect sunny day with cobalt blue sky! Windy for first two hours with butterflies in sheltered areas. Unprecedented May invasion of V. atalanta not apparent in this area; probably due to absence of caterpillar hosts. Record number of Danaus plexippus. Only two worn individuals, the remainder newly emerged. Polygonia interrogationis and Vanessa virginiensis newly emerged first individuals derived from U.S. immigrants in May. C. ladon not usual summer form but blue like the spring form. Same area produced only 5 species with 29 individuals on July 31, 1984.

Val-Des-Monts, Quebec, Canada. 45°39'N, 75°43'W, 40 km N Ottawa, 6 km of recently improved road from McGregor Lake to St. Pierre-de Wakefield. Road follows a valley with Pellisier Creek alongside. 150 to 210 m; habitat coverage includes pastures and hayfields along road with hills covered by mixed evergreen forests beyond. 4 July 1985; 1000 to 1500 hrs. Clear all day! 16-26°C; wind W, 10 km/hr. One observer in one party; total party hours 5 (all on foot); total party miles 6 (all on foot). Observer: J. Holliday (198 Keyworth Ave., Ottawa, ONT, Canada K1Y 0E9). Conservation status of area surveyed: Uses of land: Marginal fields with many returning to forest and scrub. Strip development along road with 1 to 5 new houses every year. some logging on hills 2 km beyond road. Imminent threats to habitats: No others. Changes noticed since last year: Road overgrown with grasses, red clover, vetches, wild peas providing good cover for many butterfly species. Colias philodice 3, Pieris rapae 10, Limenitis arthemis 71, Phyciodes prob. pascoensis (as tharos) 43, Polygonia comma 4, P. interrogationis 1, Vanessa atalanta 7, Coenonympha tullia (inornata) 70, Megisto cymela 14, Satyrodes eurydice 2, Danaus plexippus 13, Thorybes pylades 1, Thymelicus lineola 730 -- all species ID'd by sight. total 14 species, about 913 individuals. Larvae seen: Vanessa atalanta 10 on Urtica; Danaus plexippus 8 on Asclepias. Field notes: Good numbers of Monarchs after none in 1984. Some butterfly species absent or few. Unusually cool June, but warmer last seven days. Last of enormous invasion of Vanessa atalanta which began in early May still around. Every nettle patch is loaded with larvae.

#### COUNT FROM PREVIOUS YEAR

Gilpin County (central circle), CO. 39°52'N, 105°30'W, center Dory Hill includes Golden Gate Canyon

State Park, North Clear Creek Canyon, Four Mile Gulch, Tolland, East Portal. Elev: 2135-2837 m. Habitat coverage: As last year: mainly lodgepole pine/Engelmann spruce forest, meadows and willow bogs. 5 July 1976; 0900 to 1300 hr, AM mostly clear, PM mostly cloudy with intermittent rain; 21-27°C; wind variable, 0-20 km/hr. Four observers in one party. Total party hours 4 (3 on foot, 1 by car); total party miles 28 (3 on foot, 25 by car). Observers: R. Stanford (720 Fairfax St. Denver, CO 80220), K., L., S. Stanford. Conservation status of area surveyed: lightly grazed private land; some public (State Park or Bureau of Land Management). Uniqueness of habitats: Typical montane Colorado habitats; the only threatened habitat at present is the bog at Tolland, type locality of Boloria selene tollandensis being drained by the Denver Water Board to increase flow in South Boulder Creek, which receives west slope water via the Moffatt tunnel. One selene was taken; no others seen. Papilio eurymedon 1 (S), P. rutulus 4 (S), Parnassius phoebus 150 (S), Colias alexandra 8 (N), C. eurytheme 1 (S), C. gigantea scudderii 3 (C), C. philodice 3 (S), Euchloe ausonides 5 (C), Eurema mexicana 1 (C), Pieris napi 4 (C), Callophrys apama 3 (C), Mitoura siva 2 (C), Satyrium behri 9 (C), S. californicum 1 (C), S. titus 1 (C), Strymon melinus 4 (C), Agriades glandon 12 (C), Euphilotes enoptes 10 (C), Everes amyntula 1 (C), Plebejus acmon 3 (C), P. icarioides 10 (S), P. saepiolus 35 (C), Boloria selene 1 (C), Charidryas gorgone 1 (S), C. nycteis 2 (C), C. palla 1 (C), Euphydryas anicia 3 (C), Limenitis weidemeyerii 2 (S), Nymphalis antiopa 3 (S), N. milberti 1 (S), Phyciodes campestris 6 (N), P. pallida 2 (N), P. pascoensis 1 (N), Speyeria aphrodite 2 (S), S. callippe 30 (C), S. coronis 3 (C), S. edwardsii 5 (C), S. mormonia 10 (S), Erynnis persius 13 (C), Thorybes mexicanus 6 (C), Euphyes vestris 20 (C), Oarisma garita 1 (C), Poanes taxiles 1 (C), Polites draco 3 (C), P. origenes 1 (C). Total 49 species, about 451 individuals. Field notes: Very dry season, with nearly all spring species gone and usual early July ones already becoming worn. Early cloudiness and rain limited our time in the field, so we didn't come close to last year's 62 species.





